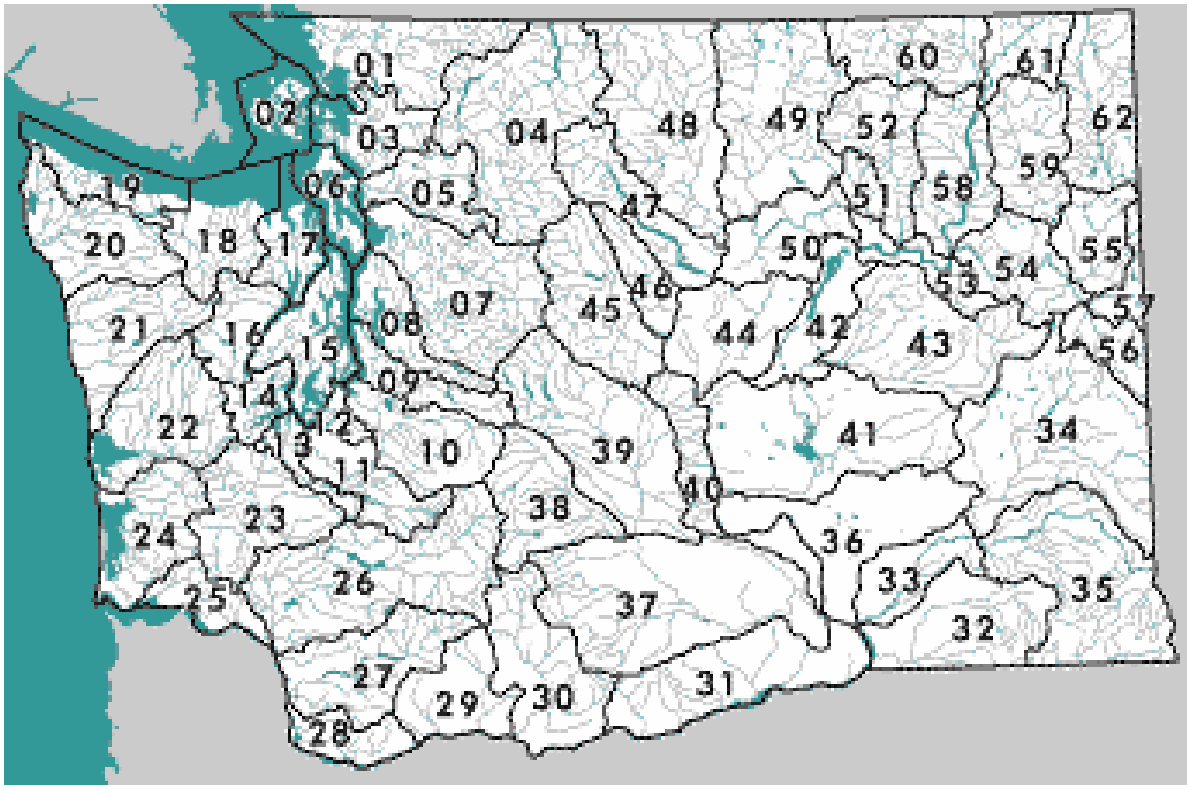

Washington's
Water Quality Management Plan
to Control
Nonpoint Sources of Pollution

Appendix A

Washington State Department of Ecology
Publication # 99-26 (Revised)
December, 2002

Water Quality Summaries for the 62 Water Resource Inventory Areas of Washington State

William A. Hashim

Washington State Department of Ecology
December, 2002

For color copies of the WRIA summaries contained in this document, please visit the Department of Ecology web site at the address below:

http://www.ecy.wa.gov/programs/wq/nonpoint/99-26.pdf

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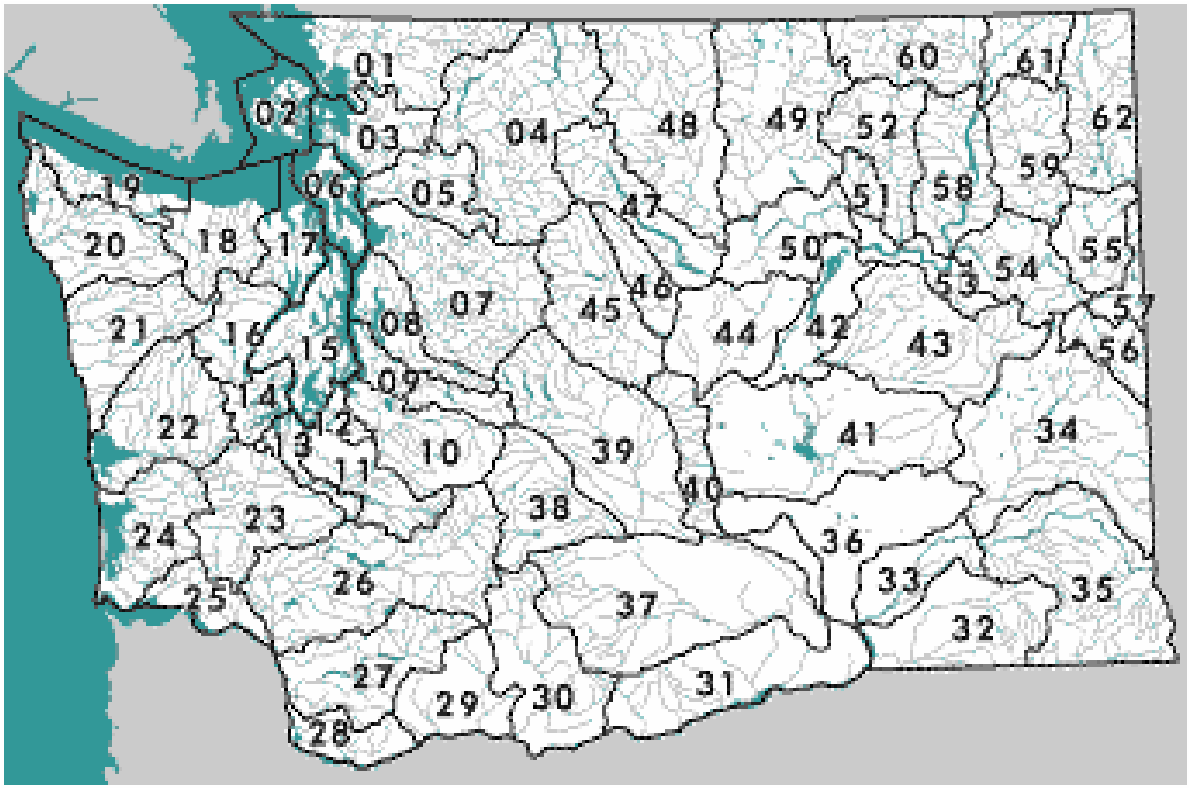


List of WRIAs

Introduction

Section 319 of the Federal Clean Water Act requires each state to develop water quality management plans for controlling nonpoint sources of pollution. In order to fulfill the federal mandate of section 319, a list of 9 key elements for an effective program were identified by the Association of State and Interstate Water Pollution Control Administrator's and adopted by the Environmental Protection Agency.

One of the elements requires state's to identify:

- waters and their watersheds impaired by nonpoint source pollution;
- the primary categories and subcategories causing the water quality impairment;
- land uses; and
- water quality programs to abate pollution.

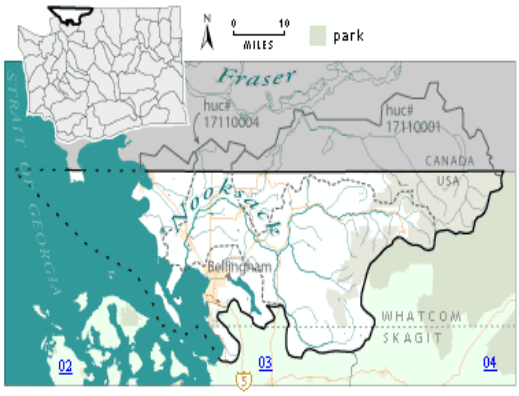
These water quality summaries for all 62 water resource inventory areas (WRIAs) can be used as a starting place in understanding the relationship between demographics and water quality problem areas.

Using these as a starting point, it was decided to expand the information beyond an administrative requirement and make it a useful document to watershed planners at the local and state level. To that end, these water quality summaries were adopted into the state's nonpoint plan as Appendix A. Since Appendix A is an official part of the state's nonpoint plan, local governments, tribes, and special purpose districts can apply for water quality grants to address the problems identified for each WRIA, and their activities will again be adopted back into the state's plan.

Data descriptions and explanations of where the information came from

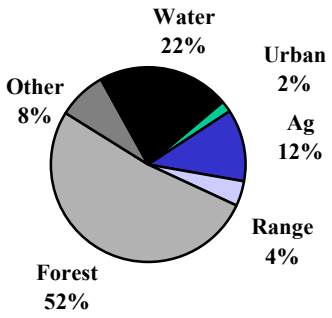
Using WRIA 1 as an example, the following pages describe where information came from and how it is to be used.

Nooksack Basin - WRIA #1



Demographics

Land Use in Nooksack Basin



Wash ington's land use information came from a GIS land cover data layer produced and updated by the Multi-resolution Land Characterization Consortium (1999). The GIS land cover layer was clipped by WRIA to illustrate the percentages shown above. The project was a cooperative effort between the US Geological Survey and the US Environmental Protection Agency.

Category "other" may include perennial ice/snow, bare rock/sand/clay, quarries/strip mines/gravel pits, transitional, and wetlands.

Land Base (in acres)

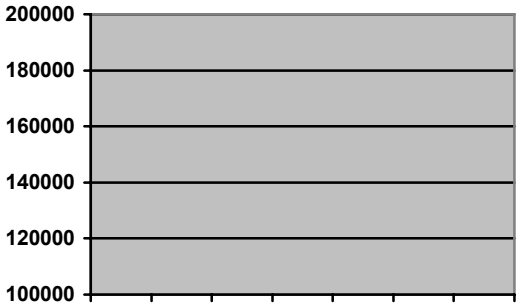
The source for acreage came from DNRs Public Lands Survey. Total WRIA acreage minus public lands yielded total private lands.

Principal economic activity (as total wages)

Wage figures come from the Labor Market & Economic Analysis (LMEA) Program year 1999 database. The numbers were by county and extrapolated as best-as-possible to fit WRIAs. Often, wages earned did not mesh with the major land use. For example, in the Palouse, agriculture is the major land use, but the majority of wages earned came from the government sector.

Population

Projected population trends



The population figures and growth trends came from the 1995 OFM population projections. Projections are updated every 5 years. In a number of cases, it seemed that growth was extraordinary, however, since there were no better numbers to go by, OFM's were used.

Counties

Special purpose districts

Principle Cities

Reservation Lands

Only tribal reservation lands were listed and not "Usual and Accustom" lands.

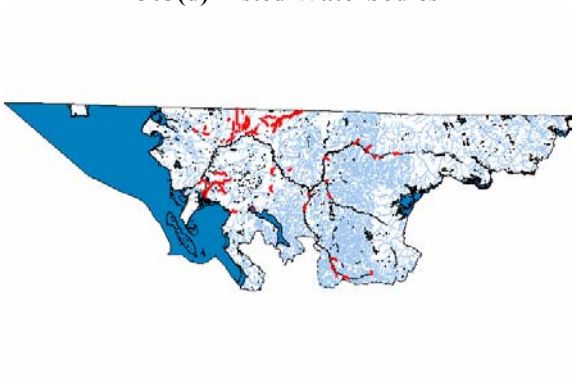
General Landscape

This description mostly came from Ecoregions of the Pacific Northwest, Omernik et al. At times, the general description of the ecoregions did not fit the unique description of a WRIA. These were changed when comments were received.

Surface Water Quality

This section summarizes the quality of surface water in the indicated basin. In the map below, 303(d) listed problem areas are highlighted in red.

303(d) Listed Waterbodies



303(d) listed Problem Areas

This list identifies waterbodies impacted by both pollutants and pollution. Only those water bodies impacted by pollutants require a TMDL. Beneficial uses impacted by pollution did not require a TMDL.

Total Maximum Daily Loads

TMDLs are required for all water bodies impacted by pollutants identified in the 1998 303(d) report. This number includes TMDL projects that are required but have not yet been approved or developed prior to December 2001. The Department of Ecology (DOE) updates TMDL status.

Groundwater Quality

This section identifies potential risk from nitrates and levels of nitrates detected in public wells. Both set of data came from USGS studies. In addition, Pesticides in Public Supply Wells of Washington State found at http://wa.water.usgs.gov/ccyk/fs-122-96.html .

The data was queried from the DOH's 2001 Drinking Water Database website (SADIE). The DOH updates the website on a regular basis.

Water Quantity

This section determines if a basin's water resource is over appropriated. It also identifies basins where: 1) baseline flow data is set but the adequacy of the flow level is not determined; 2) flows are not set but growth pressure is prevalent; 3) flows are set inadequately and need to be increased; 4) flows are not set and there is limited growth pressure; and 5) no data exists or there is no concern.

In over appropriated basins and in basins where flows are set but the adequacy of the flow level is not determined, the human population is ranked as high (over 50,000), medium (10,000 - 50,000), or low (< 10,000). This information is given to illustrate the potential threat to water quantity in that basin.

Flow and population data came from the January 1999 Draft Statewide Strategy to Recover Salmon – Extinction is Not an Option: Assessment of Adequacy of Water for Fish, Volume I, map page V. 93, and Human Population Growth from 1990 – 2010, Volume II, III – Elements of Recovery, F – Implementation to Insure Success, 3 – Educating the Public about the Needs of Salmon, Attachment 7.

Air Quality

Windblown dust from bare, dry agricultural fields (irrigated, dryland and fallow) periodically contributes to exceedances of the 24-hour PM10 National Ambient Air Quality Standards (NAAQS). Fallow fields typically present the most serious threat. More than three exceedances in a three year period may result in EPA finding of nonattainment, which has serious consequences for the affected community.

Public Health

Shellfish Harvesting Areas

This section ranks shellfish harvesting areas as threatened, impaired, threatened and impaired or healthy in terms of nonpoint source pollution as determined by the DOH Shellfish Program. This data does not include recreational areas or areas impacted by point source pollution.

Definitions:

Approved – The watershed contains shellfish beds that exceed the National Shellfish Sanitation Programs standards for the Approved classification

Concerned – The watershed contains shellfish beds that are on the Department of Health's concerned list. Pollution concerns have been identified in these areas that may affect the classification of the shellfish area in the future.

Threatened – The watershed contains shellfish beds that are on the Department of Health's Threatened List. Significant pollution concerns have been identified in these areas. The areas shellfish classification is threatened with a downgrade.

Impaired – The watershed contains shellfish beds that are classified as Conditionally Approve, Restricted, or Prohibited due to pollution problems.

Undetermined – This watershed contains shellfish beds that are currently unclassified by the Department of Health. These beds may be classified in the future.

Domestic Water Systems

This entry identifies basins that contain sources for larger community water systems (CWS) where surface water and spring water represents a significant portion of the systems total capacity. The vulnerability of surface water to contamination and the potential impact on human health make these basins important areas for protection, preservation and/or pollution mitigation.

Data was compiled from the DOH's 2002 SENTRY database. The data set that was used included all community water systems, as defined by the federal Safe Drinking Water Act, reporting > 1,000 total connections. The data set was further screened for systems using surface water sources as permanent or seasonal (excluding emergency) supplies that represent at least 25% of the system's permanent and seasonal capacity.

Community water systems that met the criteria above are determined to "Significantly utilize surface water sources." All other systems are determined to have "No significant use of surface water sources."

Salmonid Stock Status

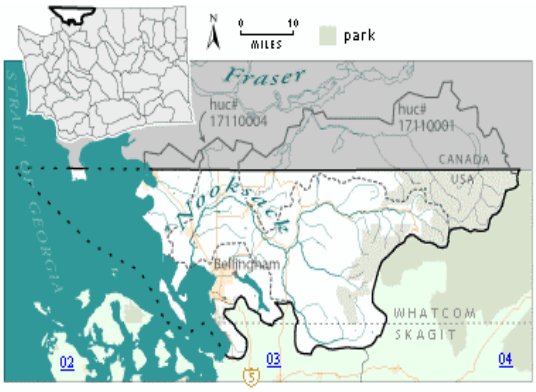
This data is based on the January 1999 Draft Statewide Strategy to Recover Salmon – Extinction is not an option. Raw data came from the Salmon and Steelhead Stock Inventory (SASSI) and the Endangered Species Act (ESA).

Threatened basins are those that rank high in both healthy and unhealthy stocks. Impaired basins are those that rank high in unhealthy stocks and low in healthy stocks.

Water Quality Programs in WRIA #1

Most of this information came directly from contacting regional Conservation Districts, county Planning and Health Departments, and county and city Public Works Departments in Washington state via mail and telephone. Roughly about 75% of those contacted participated with a response.

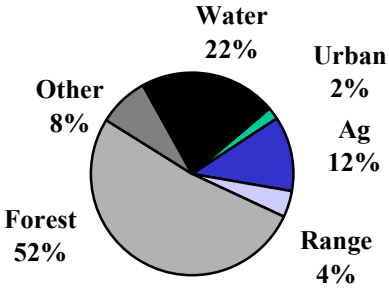
Nooksack Basin - WRIA #1



WRIA #1 encompasses about 1,039,283 acres, with more than 1,000 miles of rivers and streams. The eastern third is mountainous and heavily forested. The western portion is a broad floodplain.

Demographics

Land Use in Nooksack Basin



Land Base (in acres)

Federal	270,392	26%
State	102,758	9.9%
Local	302	.03%
Tribal	13,241	1.3%
Private	652,590	62.8%

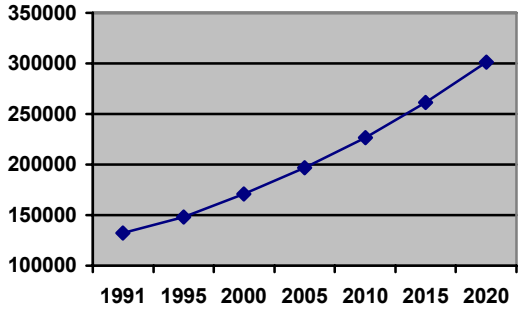
Principal economic activity (as total wages)

Agriculture/Forestry	4%
Manufacturing	15%
Retail Trade	22%
Services	25%
Government	15%

Population

There are approximately 148,300 people living in the Nooksack River Basin. The primary population centers are Bellingham, Lynden, and Ferndale. The majority of people live in unincorporated areas.

Projected population trends



Counties

Whatcom (94%)
Skagit (6%)

Special purpose districts
Conservation Districts: Whatcom; Skagit

Shellfish Protection Districts: Portage Bay
Drayton Harbor

Principal Cities

Bellingham	Ferndale
Lynden	Blaine
Everson	Sumas

Reservation Lands

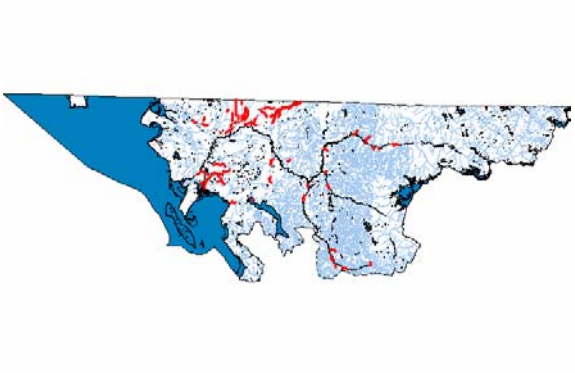
Lummi Tribe
Nooksack Tribe

General Landscape

Part of the Fraser lowlands, this WRIA has undulating glacial drift plains, terraces, and floodplains with low gradient meandering rivers and streams. Surface material is deep to moderately deep silt to sandy loam. Potential natural vegetation is western hemlock, western red cedar, and some red alder. Mean temperature ranges from 33/44° (winter) to 50/73° (summer).

Surface Water Quality

303(d) Listed Waterbodies



1. 303(d) listed Problem Areas

Fecal Coliform in Anderson Ditch, Bellingham Bay, Bender Road Ditch, Benson Road Ditch, Bertrand Creek, Clearbrook Creek, Dakota Creek, Deer Creek, Depot Road Ditch, Double Ditch Drain, Drayton Harbor, Duffner Ditch, Fishtrap Creek, Johnson Creek, Kamm Slough, Lummi Bay and Hale Passage, Lummi River, Mormon Ditch, Nooksack River, Pangborn Creek, Silver Beach Creek, Silver Creek, Squaw Creek, Sumas Creek, Sumas River, Tennant Creek, Unnamed Creek, unnamed creek WDF 01.0146, unnamed creek WDF 01.0148, and Whatcom Creek

High Temperature in Anderson Creek, Boulder Creek, Canyon Creek, Cavanaugh Creek, Cornell Creek, Gallop Creek, Hoff Creek, Howard Creek, Nooksack River, Racehorse Creek, Roaring Creek, and Whatcom Creek

Dissolved Oxygen in Anderson Ditch, Bender Road Ditch, Benson Road Ditch, Bertrand Creek, Clearbrook Creek, Dakota Creek, Deer Creek, Depot Road Ditch, Duffner Ditch, Grays Harbor County Drainage Ditch NO.1, Johnson Creek, Kamm Slough, Mormon Ditch, Pangborn Creek, Silver Creek, Squaw Creek, Sumas Creek, Tennant Creek, Unnamed Creek, unnamed creek WDF 01.0146, and Lake Whatcom

pH in Bellingham Bay, Deer Creek, Kamm Slough, Mormon Ditch, Pangborn Creek, and Squaw Creek

Metals in Bellingham Bay and Straight of Georgia

Pesticides in Bellingham Bay and Straight of Georgia

Organics in Bellingham Bay and Straight of Georgia

Nutrients in Bertrand Creek and Deer Creek

Low Instream Flow in Bertrand Creek, Fishtrap Creek, and Nooksack River

PCBs in Bellingham Bay and Straight of Georgia

Sediment Bioassay in Bellingham Bay and Straight of Georgia

Fine sediments in Anderson Creek, Howard Creek, Nooksack River, and Racehorse Creek

Total Maximum Daily Loads
10 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected > 10mg/L
Pesticides – Detected in public wells

Sole Source Aquifer
None

Water Quantity
Over appropriated; high growth

Air Quality
Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health
Commercial Shellfish Growing Areas
Areas threatened and impaired

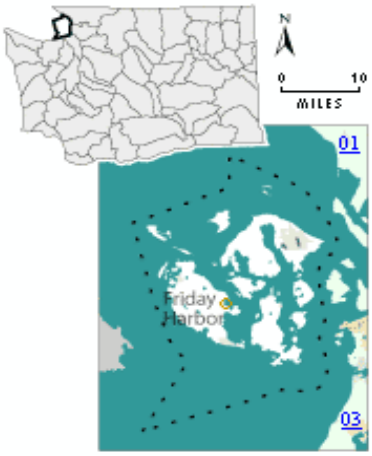
Domestic Water Supply
Within this WRIA are large community water systems that significantly utilizes surface water sources

Salmonid Stock Status
Threatened

3. Water Quality Programs in WRIA #1

1. TMDL for Bellingham Bay
2. TMDL for Lake Whatcom
3. TMDL for Whatcom Creek
4. TMDL for Nooksack River
5. TMDL for Fishtrap Creek
6. TMDL for Johnson Creek
7. TMDL for Sumas River
8. US Forest Service Northwest Forest Plan
9. City of Blaine, Everson, Ferndale, Lynden, Nooksack, and Sumas Stormwater Plans
10. Silver Creek, Ten-mile Creek, Kamm Creek, and Drayton Harbor Watershed Plans
11. Lake Whatcom Restoration Plan
12. On-site Sewage System Program, Whatcom County Health
13. Whatcom County Shellfish Protection Implementation Program, Whatcom CD
14. Stream Team, Whatcom CD
15. Water Quality Education Program,
16. Small Farm Education Program, Whatcom CD
17. Dairy Nutrient Management Planning Program, Whatcom CD
18. Environmental Quality Incentive Program, Whatcom CD
19. Dairy Nutrient Cost Share Program, Whatcom CD
20. 6th Grade Conservation Program, NRCS
21. Chuckanut Bay On-Site/Shellfish Project, Whatcom County Health
22. Shoreline Inventory of Whatcom County, Whatcom County Marine Resources Committee
23. Rapid Shoreline Inventory Program, People for Puget Sound
24. NWSC Nearshore Habitat Inventory & Evaluation, Northwest Straits Commission
25. Fecal Coliform & Paralytic Shellfish Poisoning Monitoring (Puget Sound Ambient Monitoring Program – PSAMP), DOH
26. Salmon & Steelhead Inventory & Assessment Program, WDFW
27. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
28. Estuarine Health Indicator Project, PSWQAT
29. Biotoxins Monitoring Program, DOH
30. Commercial Shellfish Growing Area Classification Program, DOH
31. Recreational Shellfish Program, DOH

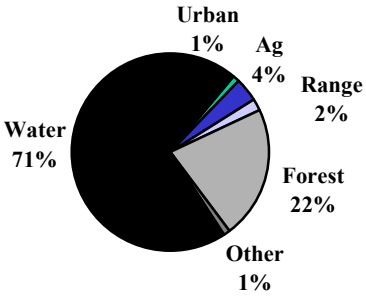
San Juan Basin - WRIA #2



WRIA #2 encompasses about 399,625 acres. The climate is influenced by maritime air masses and the rain shadow effect of the Olympic Mountains. The islands are part of the Puget Lowlands ecoregion.

Demographics

Land Use in the San Juan Basin



Land Base

Federal	2,274	.6%
State	8,767	2.2%
Local	91	.02%
Tribal	-0-	-0-
Private	388,493	97.2%

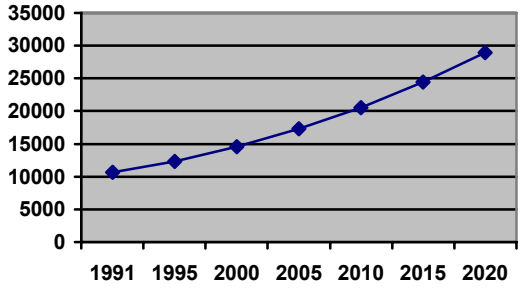
Principal Economic Activity (as total wages)

Agriculture/Forestry	3%
Construction	10%
Retail Trade	23%
Services	29%
Government	19%
Other	16%

Population

There are approximately 12,300 people living in the basin. The primary population centers are Friday Harbor, Lopez, and Eastsound. The majority of people live in unincorporated areas.

Projected population trend



Counties

San Juan (100%)

Special purpose districts

San Juan County Conservation District

Principal Cities

Friday Harbor
Lopez
Eastsound

Reservation Lands

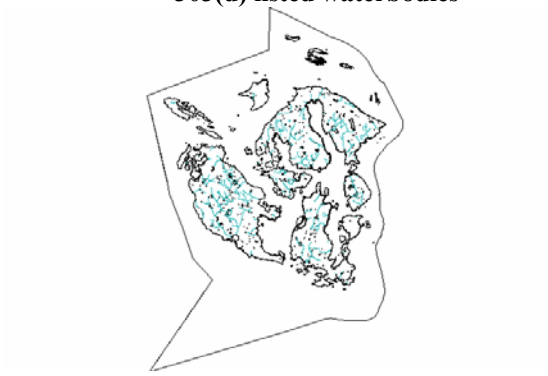
None

General Landscape

The San Juan Islands are glacial scoured islands with small intermittent streams and limited surface water. Surface material is very gravelly silt loam to gravelly loam. Potential vegetation is Douglas Fir, grand fir, and some oak. Mean temperature ranges from 36/46° (winter) to52/62° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) listed Problem Areas

Fecal Coliform in San Juan Channel

Unknown water quality impacts from the many marinas.

The degree of nitrate contamination of ground water is unknown

Some near-shoreline chloride ground water contamination due to aquifer seawater intrusion

Total Maximum Daily Loads
0 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality
Nitrates – Levels detected >10 mg/L
Pesticides – Have been detected in wells

Sole Source Aquifer
None

Water Quantity
No Concerns

Air Quality
Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health
Commercial Shellfish Growing Areas
Areas impaired

Domestic Water Supply
Within this WRIA are large community water systems that significantly utilize surface water sources.

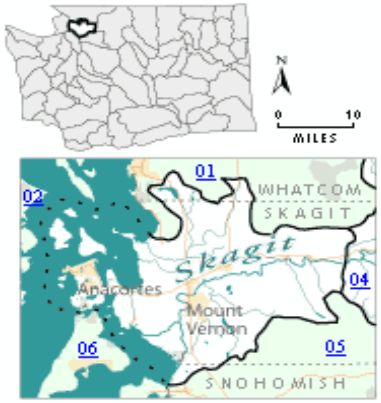
Salmonid Stock Status
Not Threatened

3. Water Quality Programs

1. Water quality assessment of Trout Lake. Trout Lake supplies water to Friday Harbor, Town of Friday Harbor
2. San Juan Shoreline Stewardship Program, Friends of the San Juans
3. Rapid Shoreline Inventory Program, People for Puget Sound
4. NWSC Nearshore Habitat Inventory & Evaluation, Northwest Straits Commission
5. Puget Sound Indicator Project (PSH 2002), PSAT
6. Fecal Coliform & Paralytic Shellfish Poisoning Monitoring (Puget Sound Ambient Monitoring Program – PSAMP), DOH
7. Salmon & Steelhead Inventory & Assessment Program, WDFW
8. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
9. Digital Coastal Atlas, DOE
10. Estuarine Health Indicator Project, PSWQAT
11. Biotoxins Monitoring Program, DOH
12. Commercial Shellfish Growing Area Classification Program, DOH
13. Recreational Shellfish Program, DOH
14. Farm & Forest Planning Program, San Juan CD
15. Watershed Planning Program, San Juan CD
16. Watershed Implementation Program, San Juan CD
17. Septic Operation & Maintenance Program, San Juan County Health
18. Water Quality Monitoring Program, San Juan CD
19. BMP Technical Assistance Program, San Juan CD
20. Watershed Stewards Program, San Juan CD

21. Public Education & Information Program, San Juan CD
22. Shoreline Master Program, San Juan County Planning
23. Development & Regulation for Stormwater Management Program, San Juan County Planning

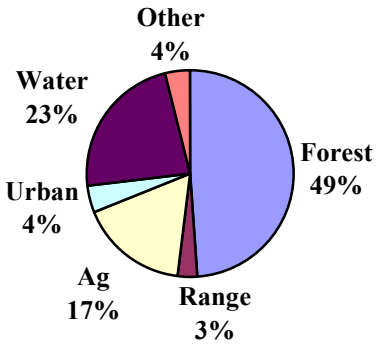
Lower Skagit-Samish Basin - WRIA 3



The Lower Skagit encompasses about 474,226 acres, mostly within the Cascade Ecoregion. The annual precipitation is 37 inches per year.

Demographics

Land Use in the Lower Skagit



Land Base

Federal	7,788	1.6%
State	60,931	12.9%
Local	488	.1%
Tribal	7,304	1.5%
Private	397,718	83.9%

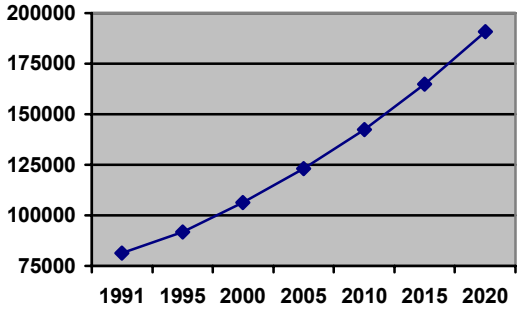
Principal Economic Activity (as total wages)

Agriculture/Forestry	9%
Manufacturing	12%
Retail Trade	23%
Services	20%
Government	20%
Other	16%

Population

There are approximately 91,699 people living in the Lower Skagit-Sammish Basin. The primary population centers are Mount Vernon and Anacortes.

Projected population trends



Counties

Skagit (94%) Whatcom (4%)
Snohomish (2%)

Principal Cities

Mount Vernon	Anacortes
Sedro-Woolley	Burlington
La Conner	Lyman

Special purpose districts

Conservation Districts: Skagit; Whatcom; Snohomish

Reservation Lands

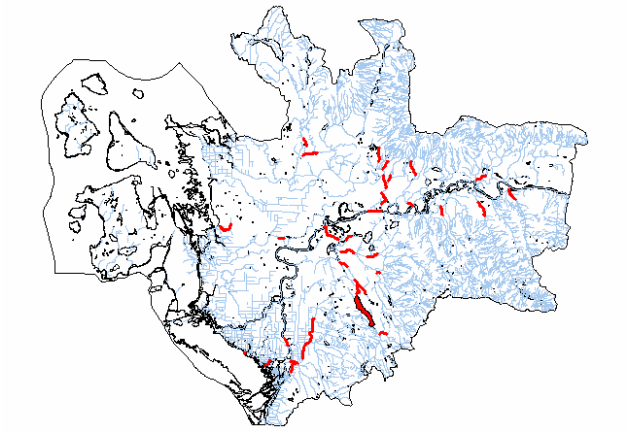
Swinomish Tribe
Upper Skagit Tribe

General Landscape

Rolling moraines and foothills, floodplains and meandering rivers characterize the lower Skagit. Surface material is deep fertile silt loam to very gravelly sandy loam. Potential natural vegetation is western hemlock, western red cedar, red alder, and some Douglas fir. Mean temperature is 36/46° (winter) to 52/62° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Browns Slough, Carpenter Creek, Friday Creek, Gages Slough, Hansen Creek, Indian Slough, Joe Leary Slough, No-name Slough, Nookachamps Creek, Samish Bay, Samish River, Skagit Bay, Similk Bay, Skagit River, Unnamed Creek, Wiley Slough

High Temperature in Carpenter Creek, Coal Creek, Cumberland Creek, Day Creek, Fisher Creek, Hansen Creek, Indian Slough, Joe Leary Slough, Jones Creek, Mud Lake Creek, Nookachamps Creek, Otter Pond Creek, Red Creek, Turner Creek, and Wiseman Creek

Dissolved Oxygen in Indian Slough, Joe Leary Slough, and Noname Slough

Nutrients in Big Lake, and Ketchum Lake

PCBs in Fidalgo Bay, Padilla Bay, and Guemes Channel

Fish Habitat in Hansen Creek, Parker Creek, and Sorenson Creek

Total Maximum Daily Loads

5 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected above 10 mg/L
Pesticides – Have not been detected in public wells

Sole Source Aquifer

None

Water Quantity

Flows not set; growth pressure

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health

Commercial Shellfish Growing Areas
Areas impaired

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

Salmonid Stock Status

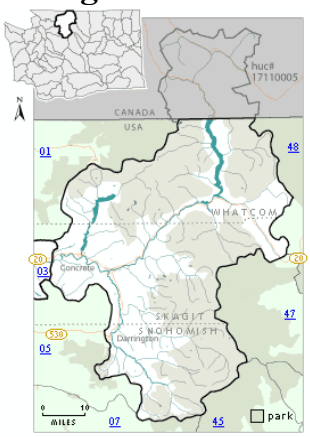
Threatened

3. Water Quality Programs

1. TMDL for Carpenter Creek, Fisher Creek, Fisher Slough
2. TMDLs for Skagit River
3. TMDLs for Stilliguamish River
4. TMDL for Nookachamps Creek
5. TMDL for Campbell Lake
6. TMDL for Erie Lake
7. Samish Bay Watershed Monitoring Project, Skagit County Public Works
8. Hansen Watershed Analysis, 1994
9. Forestry for Clean Water, Skagit CD
10. Skagit Nearshore Habitat Inventory, Skagit System Cooperative
11. Skagit Estuary Restoration Assessment, People for Puget Sound
12. Rapid Shoreline Inventory Program, People for Puget Sound
13. NWSC Nearshore Habitat Inventory & Evaluation, Northwest Straits Commission
14. Puget Sound Indicator Project (PSH 2002), PSAT

15. Fecal Coliform & Paralytic Shellfish Poisoning Monitoring (Puget Sound Ambient Monitoring Program – PSAMP), DOH
16. Salmon & Steelhead Inventory & Assessment Program, WDFW
17. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
18. Digital Coastal Atlas, DOE
19. Estuarine Health Indicator Project, PSWQAT
20. Biotoxins Monitoring Program, DOH
21. Commercial Shellfish Growing Area Classification Program, DOH
22. Recreational Shellfish Program, DOH
23. Watershed Masters Volunteer Training Program, Skagit CD
24. Stream Team, Skagit CD
25. Technical Assistance Program, Skagit CD
26. Farm Planning Program, Skagit CD
27. Forest Stewardship Program, Skagit CD
28. Water Quality Education Program, Skagit CD
29. Onsite Sewage Program, Skagit County Health
30. O & M Education Program, Skagit County Health

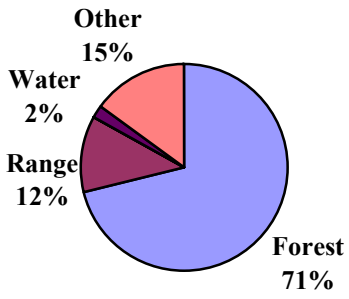
Upper Skagit Basin - WRIA #4



WRIA #4 encompasses about 1,565,856 acres. It is mountainous and heavily forested, and is mostly contained in the Cascade ecoregion. This WRIA receives nearly 100 inches of rainfall per year.

Demographics

Land Use in the Upper Skagit



Land Base (in acres)

Federal	1,358,357	86.8%
State	46,727	3.0%
Local	-0-	-0-
Tribal	-0-	-0-
Private	160,772	10.2%

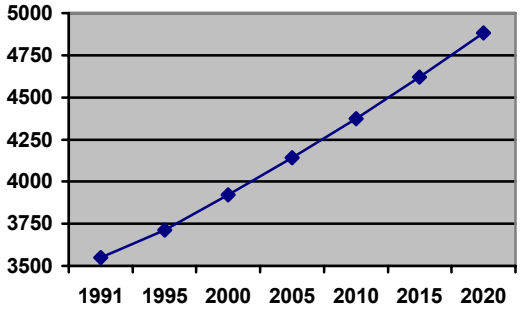
Principal Economic Activity (as total wages)

Agriculture/Forestry	17%
Manufacturing	12%
Retail Trade	15%
Services	20%
Government	20%
Other	16%

Population

There are approximately 3,800 people living in the Upper Skagit Basin. The primary population centers are Darrington and Concrete. The majority of people live in unincorporated areas.

Projected population trends



Counties

Whatcom (39%) Skagit (38%)
Snohomish (23%)

Special purpose districts

Conservation Districts: Whatcom; Skagit; Snohomish

Principal Cities

Darrington
Concrete

Reservation Lands

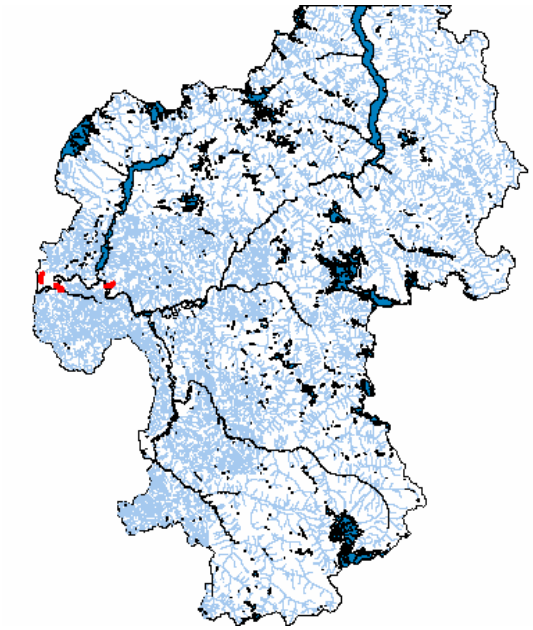
Sauk-Suiattle Tribe

General Landscape

High-glaciated ridges, plateaus, and U-shaped valleys characterize this basin. Surface material is very deep sandy, gravelly loams to undifferentiate bare rock and rubble. Potential natural vegetation is Pacific fir, sub-alpine fir, Douglas fir, and other mixed conifers. Mean temperature is13/36° (winter) to 45/70° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

High Temperature in Finney Creek, Grandy Creek, and Jackman Creek

Total Maximum Daily Loads
1 TMDL required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality
Nitrates – Levels not detected above 5 mg/L
Pesticides – Have not been detected in public wells

Sole Source Aquifer
None

Water Quantity
Flows not set; limited growth pressure

Air Quality
Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health
Commercial Shellfish Growing Areas
None

Domestic Water Supply
No significant use of surface water sources

Salmonid Stock Status
Healthy

3. Water Quality Programs

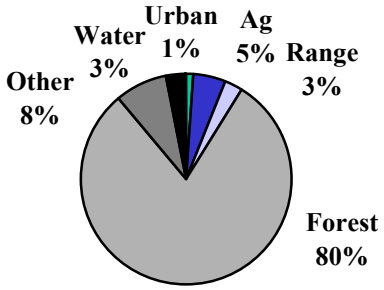
1. US Forest Service Northwest Forest Plan
2. Skagit Watershed Rehabilitation, Skagit CD
3. Watershed Masters Volunteer Training Program, Skagit CD
4. Stream Team, Skagit CD
5. Technical Assistance Program, Skagit CD
6. Farm Planning Program, Skagit CD
7. Forest Stewardship Program, Skagit CD
8. Water Quality Education Program, Skagit CD
9. Onsite Sewage Program, Skagit County Health
10. O & M Education Program, Skagit County Health

Stillaguamish Basin - WRIA #5

WRIA #5 is located in northern end of Puget Sound and is part of the Puget Sound Lowlands. The drainage area is about 459,938 acres. the average annual precipitation is 69 inches per year.

Demographics

Land use in the Stillaguamish



Land Base (in acres)

Federal	176,178	38.3%
State	71,659	15.6%
Local	-0-	-0-
Tribal	101	.02%
Private	212,000	46.1%

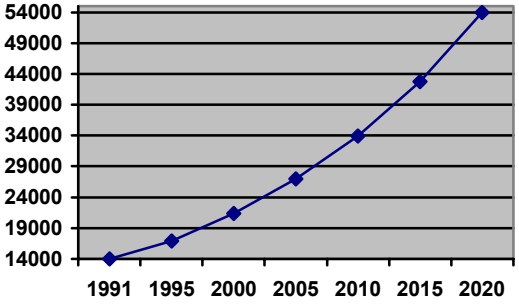
Principal Economic Activity (as total wages)

Agriculture/Forestry	2%
Construction	6%
Manufacturing	28%
Retail	19%
Services	19%
Government	15%

Population

There are approximately 22,955 people living in the Stillaguamish Basin. The primary population center is Arlington. The majority of people live in unincorporated areas.

Projected population trends



Counties

Snohomish (73%)
Skagit (27%)

Special purpose districts

Conservation Districts: Snohomish; Skagit
Drainage District #7
Snohomish County Clean Water District
Stillaguamish Flood Control District

Principal Cities

Arlington Stanwood
Granite Falls

Reservation Lands

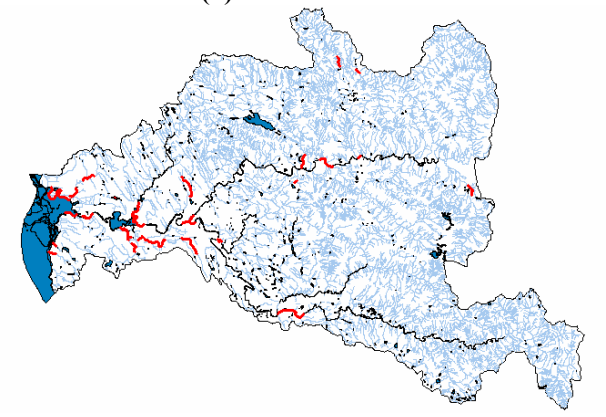
Stillaguamish Tribe

General Landscape

Rolling moraines and foothills, floodplains and meandering rivers characterize the lower Skagit. Surface material is very gravelly sandy loam. Potential natural vegetation is western hemlock, western red cedar, red alder, and some Douglas fir. Mean temperature is 36/46° (winter) to 52/62° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Fish Creek, Harvey Creek, Jim Creek, Jorgenson Slough, Martha Lake Creek, Old Stillaguamish River, Port Susan, Portage Creek, Stillaguamish River, and unnamed creek WDF 05.0456

High Temperature in Deer Creek, Higgins Creek, Little Deer Creek, Pilchuck Creek, and Stillaguamish River

Dissolved Oxygen in Pilchuck Creek, Portage Creek and Stillaguamish River

pH in Stillaguamish River

Metals in Stillaguamish River

Pesticides in Stillaguamish River

Nutrients in Stillaguamish River and Sunday Lake

Turbidity in Portage Creek

Total Maximum Daily Loads

3 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Low risk of contamination
- Levels detected > 10 mg/L

Pesticides – Have been detected in public wells.

Water Quantity

Flows not set; growth pressure

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

Areas impaired

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

Salmonid Stock Status

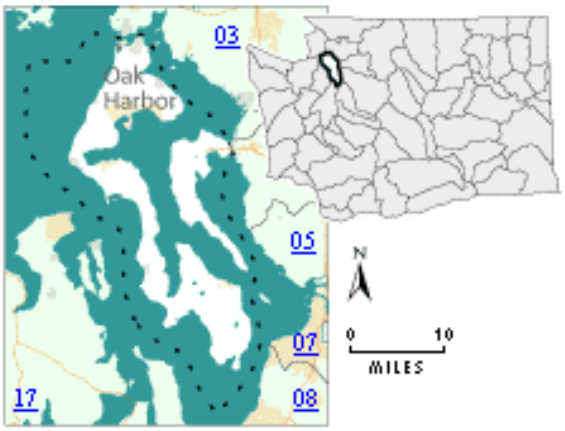
Threatened

3. Water Quality Programs

1. TMDL for Stillaguamish River
2. TMDL for Portage Creek
3. US Forest Service Northwest Forest Plan
4. On-site System Education, Snohomish County Health/Stillaguamish Implementation & Review Committee
5. Snohomish County Ground Water Management Plan, Snohomish County
6. Stillaguamish Basin Restoration and Monitoring, Snohomish County
7. Stillaguamish Watershed Coordinator, Snohomish County
8. Stillaguamish Watershed Steward Program, Snohomish County
9. Native Plant Restoration & Monitoring, Snohomish County
10. Outreach & Education, Snohomish County
11. Stormwater Management Plan, Snohomish County
12. Pollution Complaint Investigation, Snohomish County
13. Riparian & Wetland Acquisition & Protection, Snohomish County
14. Stillaguamish Comprehensive Flood Hazard Management Plan, Snohomish County
15. Water Quality monitoring programs, Snohomish County and Stillaguamish Tribe

16. Snohomish County Shoreline Inventory Outreach, Snohomish County Surface Water Management
17. Rapid Shoreline Inventory Program, People for Puget Sound
18. NWSC Nearshore Habitat Inventory & Evaluation, Northwest Straits Commission
19. Puget Sound Indicator Project (PSH 2002), PSAT
20. Fecal Coliform & Paralytic Shellfish Poisoning Monitoring (Puget Sound Ambient Monitoring Program – PSAMP), DOH
21. Salmon & Steelhead Inventory & Assessment Program, WDFW
22. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
23. Digital Coastal Atlas, DOE
24. Estuarine Health Indicator Project, PSWQAT
25. Biotoxins Monitoring Program, DOH
26. Commercial Shellfish Growing Area Classification Program, DOH
27. Recreational Shellfish Program, DOH
28. Fish Friendly BMPs Program, Snohomish CD
29. Small Farm Program, Snohomish CD
30. Dairy Nutrient Management Program, Snohomish CD

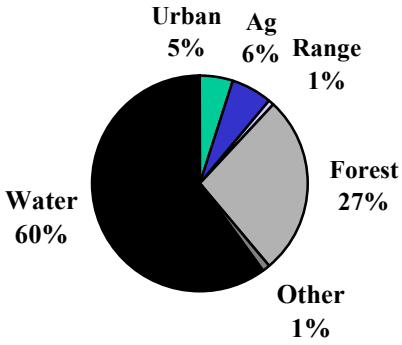
Island Basin - WRIA #6



WRIA #6 encompasses about 332,471 acres. The island is part of the Puget Lowland ecoregion. Average annual rainfall is nearly 18 inches a year.

Demographics

Land use in Island County



Land Base (in acres)

Federal	8,055	2.4%
State	6,109	1.8%
Local	-0-	-0-
Tribal	-0-	-0-
Private	318,307	95.8%

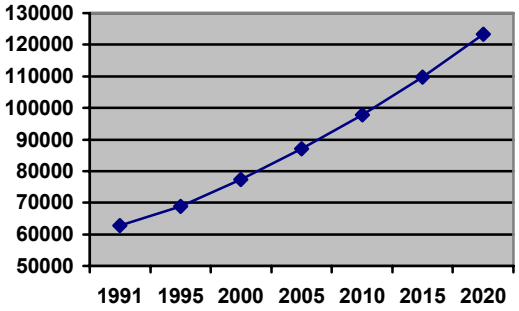
Principal Economic Activity (as total wages)

Agriculture	2%
Retail Trade	23%
Services	24%
Government	32%
Construction	5%
Other	14%

Population

There are approximately 78,900 people living in the Island Basin. The primary population centers are Oak Harbor, Coupeville, and Langley. The majority of people live in unincorporated areas.

Projected population trends



Counties

Island (100%)

Special purpose districts

Whidbey Island Conservation District

Principal Cities

Oak Harbor Coupeville
Langely

Reservation Lands

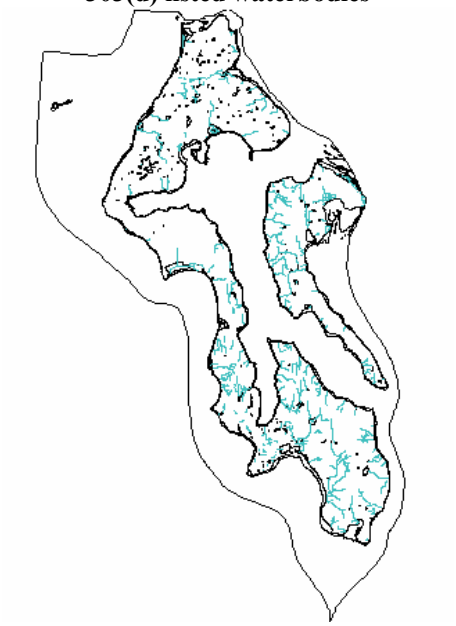
None

General Landscape

Rolling glacial till plains with small, low to medium gradient streams. Surface material is moderately deep, gravelly sandy loam. Potential vegetation is western hemlock, western red cedar, and Douglas fir. Mean temperature is 36/45° (winter) to 51/64° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Port Susan, Skagit Bay, and Similk Bay

Dissolved Oxygen in Penn Cove, Saratoga Passage, Skagit Bay and Similk Bay

pH in Saratoga Passage

Total Maximum Daily Loads

2 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected > 10 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer

Camano Island Aquifer
Whidbey Island Aquifer

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health

Commercial Shellfish Growing Areas
Areas impaired

Domestic Water Supply

No Significant use of surface water sources

Salmonid Stock Status

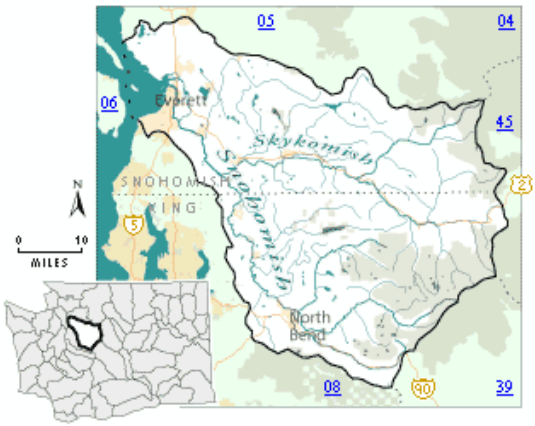
Healthy

3. Water Quality Programs

1. Water Well Survey Program, Island County Health
2. DOE Financial Assistance for Septic Repairs, Island County Health
3. Central/South Whidbey Watershed Non-Point Pollution Prevention Action Plan, Island County Public Works
4. North Whidbey Watershed Non-Point Pollution Prevention Action Plan/Implementation, Island County Public Works
5. Camano Island Watershed Non-Point Pollution Prevention Action Plan, Island County Public Works
6. Freeland Water Quality Improvement Report, Island County Public Works
7. Salmon Supporting Creeks Inventory, Island County Public Works
8. Island County Eelgrass Habitats Assessment, Island County Marine Resources Committee
9. WSU Beach Watcher Baseline Intertidal Monitoring, WSU
10. Shoreline Habitats of HC &Eastern San Juan de Fuca Assessment, UW/ Port Gamble S'Klallam Tribe
11. NWSC Nearshore Habitat Inventory & Evaluation, Northwest Straits Commission
12. Puget Sound Indicator Project (PSH 2002), PSAT
13. Fecal Coliform & Paralytic Shellfish Poisoning Monitoring (Puget Sound Ambient Monitoring Program – PSAMP), DOH

14. Salmon & Steelhead Inventory & Assessment Program, WDFW
15. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
16. Digital Coastal Atlas, DOE
17. Estuarine Health Indicator Project, PSWQAT
18. Biotoxins Monitoring Program, DOH
19. Commercial Shellfish Growing Area Classification Program, DOH
20. Recreational Shellfish Program, DOH
21. Water Quality Implementation Program, Whidbey Island CD
22. Puget Sound Implementation Plan, Whidbey Island CD
23. Environmental Quality Implementation Plan (EQUIP), Whidbey Island CD
24. Watershed Habitat Improvement Plan (WHIP), Whidbey Island CD

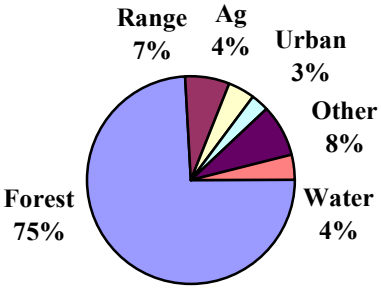
Snohomish Basin - WRIA #7



WRIA #7 encompasses about 1,221,817 acres. 60% of the WRIA is in the Cascade ecoregion, and 40% is in the Puget Lowlands. Average rainfall is 85 inches per year.

Demographics

Land Use in the Snohomish Basin



Land Base (in acres)

Federal	459,155	37.7%
State	147,578	12.0%
Local	12,879	1.0%
Tribal	20,468	1.7%
Private	581,737	47.6%

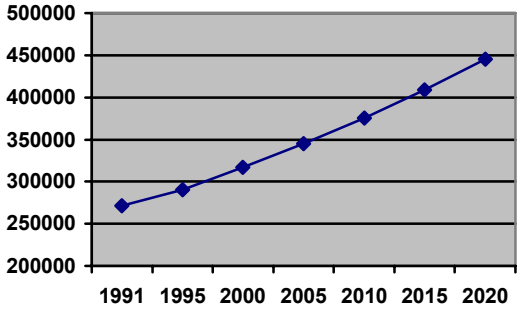
Principal Economic Activity (as total wages)

Agriculture/Forestry	2%
Construction	6%
Manufacturing	28%
Retail	19%
Services	19%
Government	15%

Population

There are approximately 320,747 people living in the Snohomish River Basin. The primary population centers are Everett, Monroe, Mukilteo, and the North Bend/Snoqualmie area. The majority of people live in unincorporated areas.

Projected population trends



Counties

Snohomish (51%) King (49%)

Special purpose districts

Conservation Districts: Snohomish; King
Diking Districts #2, #3, #4, and #5
Drainage Districts #6, #8, and #13
French Slough Flood Control District
Marshland Flood Control District
Patterson Flood Control Zone District

Principal Cities

Everett
Marysville
Mukilteo
Snohomish
Snoqualmie
Carnation
Monroe
Duvall
Lake Stevens
North Bend
Sultan

Reservation Lands

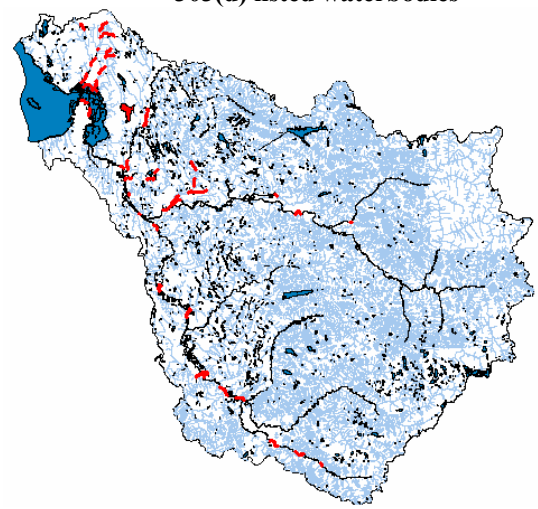
Tulalip Tribe

General Landscape

This basin has rolling moraines and foothills in the west, and low mountains with broad glaciated valleys in the east. Moderately deep silt loam to gravelly silt loam makes up the surface material. Potential natural vegetation includes western hemlock, western red cedar and Douglas fir. Mean temperature ranges from 30/43° (winter) to 50/72° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Allen Creek, Blackmans Lake, Ebey Slough, French Creek, Pilchuck River, Quilceda Creek, Skykomish River, Snohomish River, and Woods Creek

High Temperature in Pilchuck River, Skykomish River, Snohomish River, Snoqualmie River, and Wallace River

Dissolved Oxygen in Allen Creek, Ebey Slough, French Creek, Possession Sound, Quilceda Creek, Snohomish River, and Wood Creek

pH in Ebey Slough, Raging River and Snoqualmie River

Metals in Port Gardner, Inner Everett Harbor, Possession Sound, Skykomish River, and Snohomish River

Pesticides in Possession Sound, Port Gardner, Inner Everett Harbor, and Snohomish River

Organics in Port Gardner, Inner Everett Harbor, Possession Sound and Snohomish River
Nutrients in Blackmans Lake and Stevens Lake

PCBs in Port Gardner and Inner Everett Harbor

Sediment Bioassay in Port Gardner, Inner Everett Harbor, and Possession Sound

Water Column Bioassay in Ebey Slough

Total Maximum Daily Loads

8 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected > 5 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer

Newberg Area Aquifer

Water Quantity

Over appropriated; high growth

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

Areas impaired

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

Salmonid Stock Status

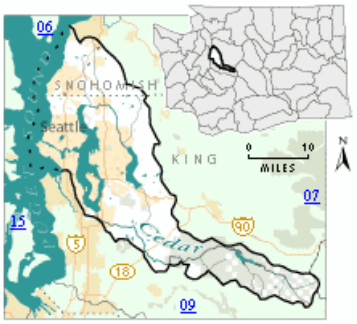
Threatened

3. Water Quality Programs

1. TMDLs for Snohomish River
2. TMDL for Snohomish River Estuary
3. TMDL for Allen Creek
4. TMDL for Quilceda Creek
5. TMDL for French Creek
6. TMDL for Woods Creek
7. TMDL for Pilchuck River
8. TMDL for Snoqualmie River

9. Snohomish River Comprehensive Flood Control Management Plan, 1992 - Snohomish County
10. Lake Stevens Watershed Management Plan - Snohomish County
11. Quilceda/Allen Watershed Action Plan - Snohomish County
12. Water Quality Monitoring Program - Snohomish County
13. US Forest Service Northwest Forest Plan
14. Snohomish County Stormwater Management Plan, Snohomish County
15. Outreach & Education, Snohomish County
16. Pollution Complaint Investigation, Snohomish County
17. Riparian & Wetland Acquisition & Protection Program, Snohomish County
18. French Creek Watershed Management Plan, Snohomish County
19. King County Flood Hazard Reduction Plan
20. King County Stormwater Management Plan
21. Snohomish Watershed Steward Program, Snohomish County
22. Cemetery Creek Watershed Restoration Plan, Snohomish County
23. Snohomish County Ground Water Management Plan, Snohomish County
24. Quilceda/Allen Citizen Action Program, Snohomish County
25. Snohomish Health District Drainfield Awareness and Vital Education (DAVE), Snohomish Health District
26. Snohomish Estuary Wetland Integration Plan (SEWIP), City of Everett
27. Snohomish County Shoreline Inventory Outreach, Snohomish County Surface Water Management
28. Small Farm Planning, King CD
29. Dairy Waste Planning, King CD
30. Agricultural Water Quality BMPs, King CD
31. Agricultural Education Program, King CD
32. NWSC Nearshore Habitat Inventory & Evaluation, Northwest Straits Commission
33. Puget Sound Indicator Project (PSH 2002), PSAT
34. Fecal Coliform & Paralytic Shellfish Poisoning Monitoring (Puget Sound Ambient Monitoring Program – PSAMP), DOH
35. Salmon & Steelhead Inventory & Assessment Program, WDFW
36. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
37. Digital Coastal Atlas, DOE
38. Estuarine Health Indicator Project, PSWQAT
39. Biotoxins Monitoring Program, DOH
40. Commercial Shellfish Growing Area Classification Program, DOH
41. Recreational Shellfish Program, DOH
42. Fish Friendly BMPs Program, Snohomish CD
43. Small Farm Program, Snohomish CD
44. Dairy Nutrient Management Program, Snohomish CD
45. NPDES Stormwater Management Program, King County DNR

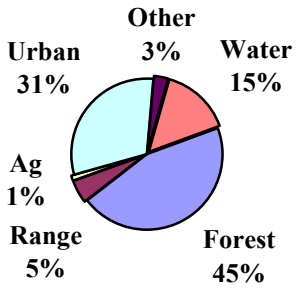
Cedar-Sammamish Basin - WRIA #8



WRIA #8 drains about 442,791 acres of Northern King and Southern Snohomish Counties. The majority of the WRIA is within the Puget Lowland ecoregion.

Demographics

Land Use in the Cedar-Sammamish Basin



Land Base (in acres)

Federal	17,598	3.9%
State	12,984	3.0%
Local	74,703	16.9%
Tribal	-0-	-0-
Private	337,506	76.2%

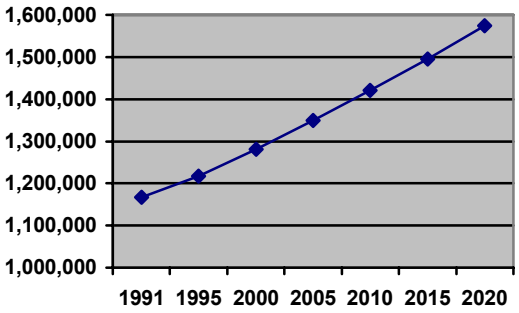
Principal Economic Activity (as total wages)

Services	29%
Retail Trade	17%
Manufacturing	14%
Government	13%
Other	27%

Population

There are approximately 1,916,924 people living in the Cedar-Sammamish River Basin. The primary population centers are Seattle, Bellevue, Renton, and Kirkland. The majority of people live in principal cities.

Projected population trends



Counties

King Snohomish

Special purpose districts

Conservation Districts: King County; Snohomish County
Snohomish County Watershed Management Area

Principal Cities

Seattle	Bellevue	Renton
Kirkland	Redmond	Edmonds
Lynwood	Mercer Island	Issaquah
Newcastle	Shoreline	Bothell
Mountlake Terrace		Woodinville
Lake Forest Park		

Reservation Lands

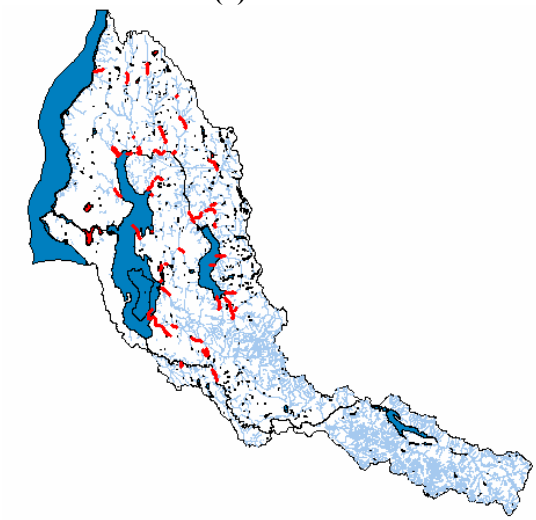
none

General Landscape

Rolling moraines and foothills, floodplains and meandering rivers characterize this basin. Surface material is gravelly sandy loam to deep clay loam, gravelly loam, and cobbly loam. Potential natural vegetation is western hemlock, western red cedar, red alder, and some Douglas fir. Mean temperature is 31/46° (winter) to 52/78° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Bear-Evans Creek, Cedar River, Coal Creek, Eden Creek, Fairweather Bay Creek, Forbes Creek, Issaquah Creek, Juanita Creek, Kelsey Creek, Laughing Jacob's Creek, Lewis Creek, Little Bear Creek, Lyon Creek, May Creek, McAleer Creek, Mercer Slough, Mullen Slough, Norma Creek, North Creek, Pine Lake Creek, Sammamish Lake, Sammamish River, Silver Lake, Swamp Creek, Thornton Creek, Tibbets Creek, Washington Lake, and Yarrow Bay Creek

High Temperature in Fairweather Bay Creek, Issaquah Creek, May Creek, and Sammamish River

Dissolved Oxygen in Mercer Slough, Norma Creek, North Creek, Sammamish River, and Swamp Creek

pH in Mercer Slough, and Sammamish River

Metals in Bear-Evans Creek, May Creek, and Puget Sound

Pesticides in Kelsey Creek, Puget Sound and Union Lake/Lake Washington Ship Canal
Organics in Puget Sound

Nutrients in Beaver Lake NO.1, Beaver Lake NO.2, Cottage Lake, Green Lake, Martha Lake, and Scriber Lake

PCBs in Puget Sound

Sediment Bioassay in Union Lake/Lake Washington Ship Canal and Washington Lake

Total Maximum Daily Loads

7 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected > 5 mg/L
Pesticides – Have been detected in public wells,

Sole Source Aquifer

Cedar Valley Aquifer
Cross Valley Aquifer

Water Quantity

Over Appropriated; high growth

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health

Commercial Shellfish Growing Areas
None

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

Salmonid Stock Status

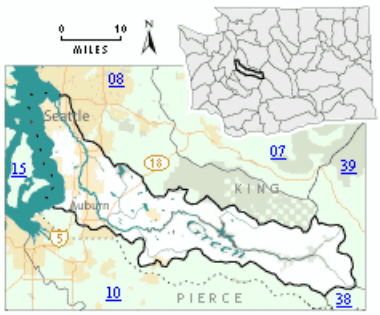
Threatened

3. Water Quality Programs

1. TMDL for North Creek
2. TMDL for Beaver Lake
3. TMDL for Tibbets Creek
4. TMDL for Laughing Jacob's Creek
5. TMDL for Eaton Creek
6. TMDL for May Creek
7. TMDL for Larsen Lake
8. TMDL for Ballinger Lake
9. TMDL for Pipers Creek

10. City of Lynwood Comprehensive Flood and Drainage Management Plan - City of Lynwood
11. Stormwater Education - City of Lynwood
12. City of Lynwood Stormwater Utility
13. Swamp Creek Watershed Action Plan - Snohomish County
14. North Creek Watershed Action Plan - Snohomish County
15. Water Quality Monitoring in North Creek; Swamp Creek; and Little Bear Creek - Snohomish County
16. South County Watershed Steward, Snohomish County
17. Outreach & Education, Snohomish County
18. Stormwater Management Plan, Snohomish County
19. Pollution Complaint Investigation, Snohomish County
20. Riparian & Wetland Acquisition & Protection, Snohomish County
21. Business Outreach & Technical Assistance, Snohomish County
22. Low Impact Development Program, Snohomish County
23. Thornton Creek Watershed Action Plan, Seattle Public Utilities
24. Cedar and Tolt River Water Quality Monitoring, Seattle Water Department
25. Pipers Creek Watershed Action Plan, Seattle Engineering
26. Water Quality Consortium Education, King County Metro
27. South County Watershed Steward Program, Snohomish County
28. Snohomish County Ground Water Management Plan, Snohomish County
29. State of the Nearshore Report, King County Dept. of Natural Resources
30. Small Farm Planning, King CD
31. Dairy Waste Planning, King CD
32. Agricultural Water Quality BMPs, King CD
33. Agricultural Education Program, King CD
34. Rapid Shoreline Inventory Program, People for Puget Sound
35. Puget Sound Indicator Project (PSH 2002), PSAT
36. Fecal Coliform & Paralytic Shellfish Poisoning Monitoring (Puget Sound Ambient Monitoring Program – PSAMP), DOH
37. Salmon & Steelhead Inventory & Assessment Program, WDFW
38. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
39. Digital Coastal Atlas, DOE
40. Estuarine Health Indicator Project, PSWQAT
41. Biotoxins Monitoring Program, DOH
42. Commercial Shellfish Growing Area Classification Program, DOH
43. Recreational Shellfish Program, DOH

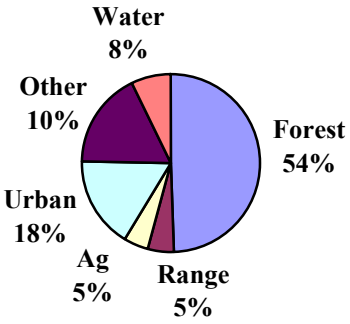
Duwamish-Green Basin - WRIA 9



WRIA #9 drains nearly 372,463 acres, and is entirely located within King County. Upper watershed is mountainous, lower watershed is part of the Puget Lowlands.

Demographics

Land Use in the Duwamish/Green



Land Base (in acres)

Federal	36,228	9.7%
State	21,733	5.8%
Local	17,421	4.6%
Tribal	764	.2%
Private	296,317	79.7%

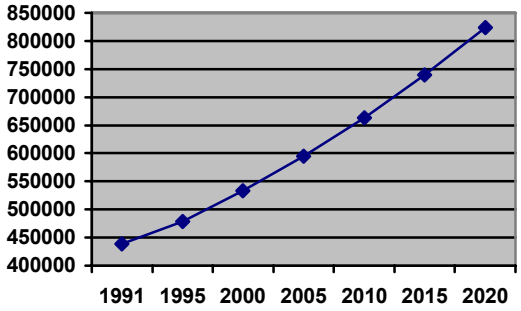
Principal Economic Activity (as total wages)

Services	29%
Retail Trade	17%
Manufacturing	14%
Government	13%
Other	27%

Population

There are approximately 578,508 people living in the Duwamish-Green Basin. The primary population centers are Seattle, Renton, Kent, and Auburn. The majority of people live in unincorporated areas.

Projected population trends



Counties

King (100%)

Special purpose districts

King Conservation District

Principal Cities

Seattle	Renton
Kent	Auburn
Des Moines	Tukwila
Normandy	Algona
Black Diamond	Federal Way

Reservation Lands

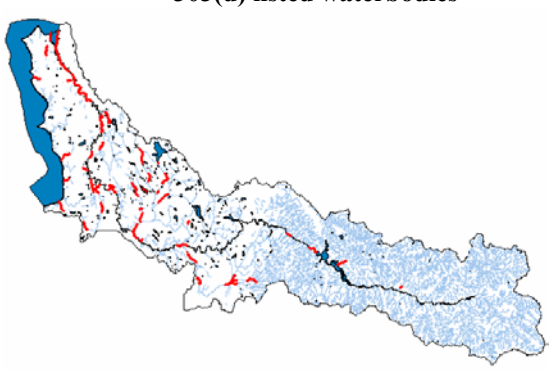
Muckleshoot Tribe

General Landscape

Lowlands are floodplains and terraces with meandering rivers and oxbow scars. Mountains are U-shaped glaciated valleys with medium gradient rivers. Surface material ranges from deep fertile silt loam to very deep clay loam, gravelly clay loam, and cobbly loam. Potential natural vegetation is western hemlock, western red cedar, Douglas fir, and red alder. Mean temperature ranges from 33/44° (winter) to 50/78° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Cold Springs Creek, Crisp Creek, Des Moines Creek, Duwamish Waterway and River, Elliott Bay, Fauntleroy Creek, Green River, Hicks Lake, Hill Creek, Joe's Creek, Lakota Creek, Longfellow Creek, Meridian Lake, Mullen Slough, Newaukum Creek, Puget Sound and East Passage, Redondo Creek, Soos Creek System, Springbrook Creek, and unnamed creek WDF 09.0046

High Temperature in Gale Creek, Green River, Hill Creek, Mullen Slough, Smay Creek, Soos Creek System, and Springbrook Creek

Dissolved oxygen in Duwamish Waterway and River, Hill Creek, Mullen Slough, Newaukum Creek, Soos Creek System, Springbrook Creek, and unnamed creek WDF 09.0046

pH in Duwamish Waterway and River, Puget Sound and East Passage

Metals in Duwamish Waterway and River, Elliott Bay, Green River, and Springbrook Creek

Pesticides in Duwamish Waterway and River and Elliot Bay

Organics in Duwamish Waterway and River and Elliot Bay

Nutrients in Hicks Lake, Meridian Lake, Newaukum Creek, Puget Sound and East Passage, and East Passage

PCBs in Duwamish Waterway and River and Elliott Bay

Sediment Bioassay in Duwamish Waterway and River, Elliott Bay, and Springbrook Creek

Total Maximum Daily Loads

11 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected > 10 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer

Cedar Valley Aquifer

Water Quantity

Over appropriated; high growth

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health

Commercial Shellfish Growing Areas
Status undetermined

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

Salmonid Stock Status

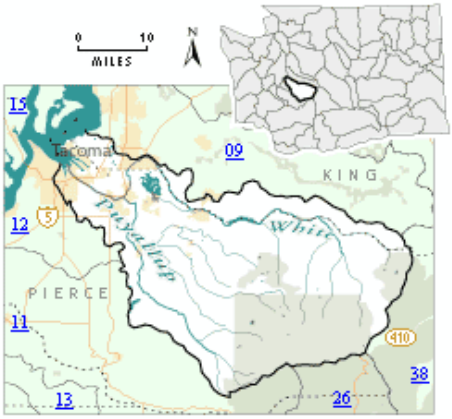
Threatened

3. Water Quality Programs

1. TMDLs for Duamish River
2. TMDL for Elliot Bay
3. TMDLs for Green River
4. TMDL for Fenwick Lake
5. TMDL for Sawyer Lake
6. Longfellow Creek Watershed Action Plan, City of Seattle
7. King County Stream Stewardship
8. Lake Sammamish Restoration Project, King County

9. Mill Creek Water Quality Management Plan, King County
10. Small Farms Animal Waste Disposal, King County CD
11. Lower Mill Creek Improvement Plan, City of Kent
12. Kent Water Quality Management Plan, City of Kent
13. Surface Water Action Team, King County Metro
14. Stormwater Treatment, City of Seattle
15. State of the Nearshore Report, King County Dept. of Natural Resources
16. Volunteer Monitoring of Salmon Habitat, People for Puget Sound
17. Small Farm Planning, King CD
18. Dairy Waste Planning, King CD
19. Agricultural Water Quality BMPs, King CD
20. Agricultural Education Program, King CD
21. Rapid Shoreline Inventory Program, People for Puget Sound
22. Puget Sound Indicator Project (PSH 2002), PSAT
23. Fecal Coliform & Paralytic Shellfish Poisoning Monitoring (Puget Sound Ambient Monitoring Program – PSAMP), DOH
24. Salmon & Steelhead Inventory & Assessment Program, WDFW
25. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
26. Digital Coastal Atlas, DOE
27. Estuarine Health Indicator Project, PSWQAT
28. Biotoxins Monitoring Program, DOH
29. Commercial Shellfish Growing Area Classification Program, DOH
30. Recreational Shellfish Program, DOH

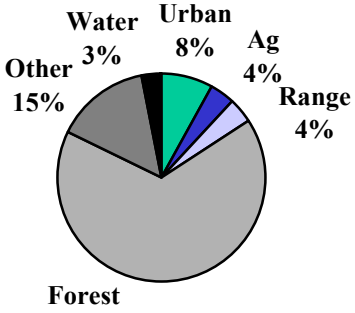
Puyallup-White Basin - WRIA #10



WRIA #10 encompasses about 674,272 acres. This area receives nearly 65 inches of rainfall per year. Upper watershed is in the Cascades ecoregion; lower watershed is in the Puget Lowlands.

Demographics

Land Use in Puyallup Basin



Land Base

Federal	261,460	38.8%
State	4,314	.6%
Local	-0-	-0-
Tribal	21,252	3.2%
Private	387,246	57.4%

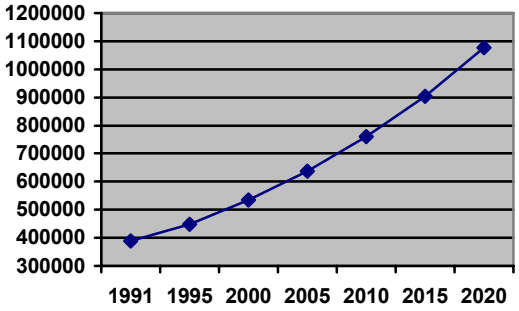
Principal Economic Activity (as total wages)

Agriculture/Forestry	2%
Manufacturing	11%
Retail Trade	20%
Services	27%
Government	21%
Other	19%

Population

There are approximately 549,059 people living in the Puyallup-White Basin. The primary population centers are Tacoma and Puyallup. The majority of people live in unincorporated areas.

Projected population trends



Counties

Pierce (87%) King (13%)

Special Purpose Districts

Conservation Districts: Pierce County; King

Principal Cities

Tacoma	Puyallup
Bonney Lake	Enumclaw
Sumner	Milton
Pacific	Fife

Reservation Lands

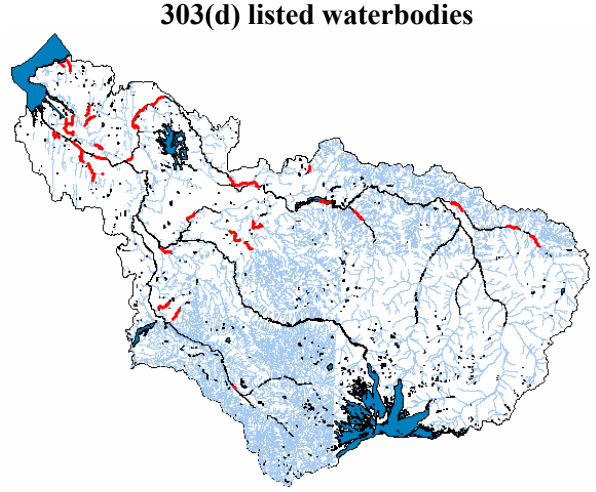
Muckleshoot Tribe
Puyallup Tribe

General Landscape

Lowlands are floodplains and terraces with meandering rivers and oxbow scars. Mountains are U-shaped glaciated valleys with medium gradient rivers. Surface material ranges from Surface material ranges from deep fertile silt loam to very deep clay loam, gravelly clay loam, and cobbly loam. Potential natural vegetation is western hemlock, western red cedar, Douglas fir, and red alder. Mean temperature ranges from 33/44° (winter) to 50/78° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) listed Problem Areas

Fecal Coliform in Clarks Creek, Clear Creek, Commencement Bay**,** Fife Ditch, Hylebos Creek, Meeker Ditch, Puyallup River, South Prairie Creek, Swan Creek, Unnamed Creek, Wapato Creek and White River

High Temperature in Boise Creek, Clearwater River, Fox Creek, Green Water River, Kings Creek, Meeker Ditch, Scatter Creek, South Prairie Creek, Voight Creek, White River and Wilkenson Creek

Dissolved Oxygen in Commencement Bay, Fife Ditch, Meeker Ditch, and Wapato Creek

pH in Clarks Creek, Meeker Ditch, Summit Lake, and White River

Metals in Commencement Bay, White River, and Wilkenson Creek

Pesticides in Commencement Bay and Puyallup River

Organics in Commencement Bay

Nutrients in Fife Ditch

Low Instream Flow in Puyallup River, Wapato Creek, and White River

PCBs in Commencement Bay and Thea Foss Waterway

Total Maximum Daily Loads

10 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates - Levels detected >10mg/L
Pesticides - Have been detected in wells in WRIA 10

Sole Source Aquifer

Central Pierce County Aquifer

Water Quantity

Over appropriated; high growth

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

Salmonid Stock Status

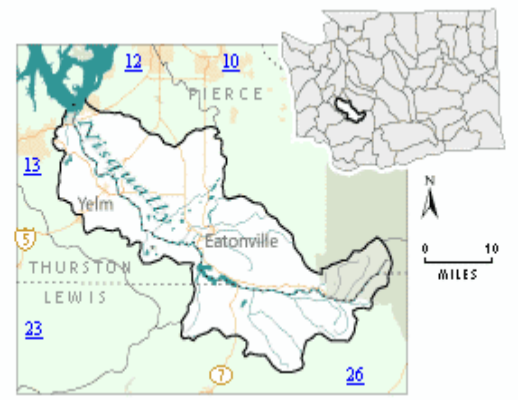
Healthy

3. Water Quality Programs

1. TMDLs for White River
2. TMDL for Scatter Creek
3. TMDL for Huckleberry Creek
4. TMDL for Clearwater River
5. TMDL for Greenwater River
6. TMDL for South Prairie Creek
7. TMDL for Wilkseson Creek
8. TMDL for Meeker Ditch
9. TMDL for Clark's Creek
10. TMDL for Commencement Bay
11. TMDL for Puyallup River
12. TMDL for Boise Creek

13. US Forest Service Northwest Forest Plan
14. Puyallup River Watershed Council, Pierce County
15. WAC 400-12 Lower Puyallup Watershed Action Plan – Puyallup River Watershed Council
16. WAC 400-12 Upper Puyallup Watershed Plan, Puyallup River Watershed Council
17. Watershed Education Program, Pierce County Public Works
18. Wellhead Protection Plan and Implementation, City of Tacoma
19. Small Farm Planning, King CD
20. Dairy Waste Planning, King CD
21. Agricultural Water Quality BMPs, King CD
22. Agricultural Education Program, King CD
23. Puget Sound Indicator Project (PSH 2002), PSAT
24. Fecal Coliform & Paralytic Shellfish Poisoning Monitoring (Puget Sound Ambient Monitoring Program – PSAMP), DOH
25. Salmon & Steelhead Inventory & Assessment Program, WDFW
26. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
27. Digital Coastal Atlas, DOE
28. Estuarine Health Indicator Project, PSWQAT
29. Biotoxins Monitoring Program, DOH
30. Commercial Shellfish Growing Area Classification Program, DOH
31. Recreational Shellfish Program, DOH
32. Stream Team, Pierce CD
33. Small Farm Planning Program, Pierce CD
34. Dairy Waste Management Program, Pierce CD
35. NPDES Stormwater Management Program, King County DNR
36. Household Hazardous Waste Education Program, Tacoma/Pierce County Health
37. Onsite Sewage Program, Tacoma/Pierce County Health
38. Clear-Clark Creek Basin Plan, Pierce County Water Program
39. Mid-Puyallup Basin Plan, Pierce County Water Program

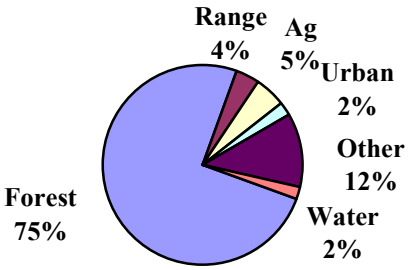
Nisqually Basin - WRIA #11



WRIA #11 encompasses nearly 492,954 acres. The headwaters start at the Nisqually Glacier on Mount Rainier and empties into Puget Sound at the Nisqually Wildlife Refuge.

Demographics

Land Use in the Nisqually Basin



Land Base

Federal	145,523	29.6%
State	60,850	12.3%
Local	-0-	-0-
Tribal	1,575	.3%
Private	85,105	57.8

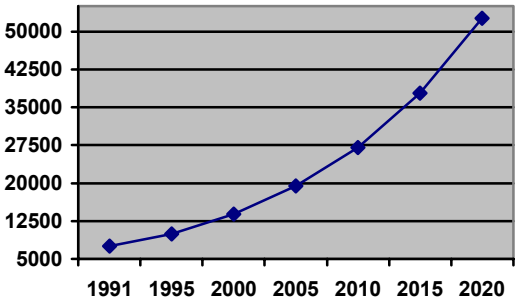
Principal Economic Activity (as total wages)

Agriculture/Forestry	2%
Government	38%
Services	21%
Retail Trade	18%
Other	11%

Population

There are approximately 12,975 people living in the Nisqually Basin. The primary population centers are Eatonville, Yelm, and Roy. The majority of people live in unincorporated areas.

Projected population trends



Counties

Pierce (58%) Lewis (25%)
Thurston (17%)

Special purpose districts:

Conservation Districts: Pierce County; Thurston; Lewis County

Principal Cities

Eatonville Roy
Yelm Dupont
Fort Lewis

Reservation Lands

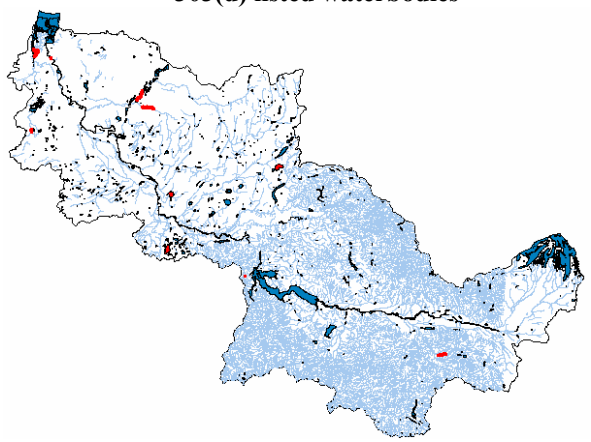
Nisqually Tribe

General Landscape

Westerly tending U-shaped glaciated valleys. Medium gradient rivers and streams tend to nearly level to rolling glacial outwash and till plains. Surface material is deep well-drained gravelly loam, gravelly sandy loam, and clays. Potential natural vegetation is western hemlock, western red cedar, Douglas fir, prairies, and some oak woodland. Mean temperature ranges from 34/46° (winter) to 47/78° (summer).

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) listed Problem Areas

Fecal Coliform in McAllister Creek, Nisqually Reach/ Drayton Passage, Nisqually River, and Ohop Creek

High Temperature in Catt Creek

Dissolved Oxygen in McAllister Creek

Nutrients in Clear Lake, Harts Lake, and Ohop Lake

Total Maximum Daily Loads
1 TMDL required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected >10 mg/L
Pesticides - Have been detected in wells in WRIA 11

Sole Source Aquifer
Central Pierce County Aquifer

Water Quantity

Flows set, adequacy of flow levels not determined; medium growth

Air Quality
Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health
Commercial Shellfish Growing Areas
Areas threatened and impaired

Domestic Water Supply
No significant use of surface water sources

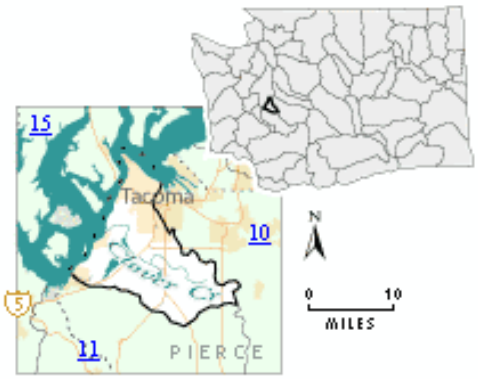
Salmonid Stock Status
Threatened

3. Water Quality Programs

1. Nisqually Watershed Council, Pierce County
2. Nisqually River Watershed Management Plan, Nisqually Watershed Council
3. Fort Lewis Water Quality Management Program, Fort Lewis
4. Nisqually Shellfish Closure Response Program 2002, Thurston CD
5. Water Quality Education, Thurston County
6. Nisqually Reach Nonpoint Remedial Action, Thurston County
7. Septic System Education and Correction, Thurston County Environmental Health
8. Puget Sound Indicator Project (PSH 2002), PSAT
9. Fecal Coliform & Paralytic Shellfish Poisoning Monitoring (Puget Sound Ambient Monitoring Program – PSAMP), DOH
10. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
11. Digital Coastal Atlas, DOE
12. Estuarine Health Indicator Project, PSWQAT
13. Biotoxins Monitoring Program, DOH
14. Commercial Shellfish Growing Area Classification Program, DOH
15. Recreational Shellfish Program, DOH
16. Farm Planning Program, Thurston CD
17. Water Quality Education Program, Thurston CD
18. Implementation Program, Thurston CD
19. Farm/Dairy Nutrient Management Program, Thurston CD
20. Stream Team, Pierce CD
21. Small Farm Planning Program, Pierce CD
22. Dairy Waste Management Program, Pierce CD
23. Drinking Water Quality Program, Lewis County Health

24. Septic O&M Program, Thurston County Health
25. Ambient Monitoring Program, Thurston County Health
26. North County Groundwater Program, Thurston County Health
27. Business Pollution Prevention Program, Thurston County Health
28. Household Hazardous Waste Education Program, Tacoma/Pierce County Health
29. Onsite Sewage Program, Tacoma/Pierce County Health
30. Muck Creek Basin Plan, Pierce County Water Program

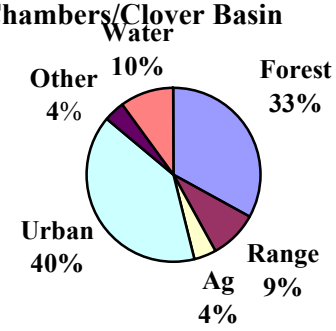
Chambers-Clover Basin - WRIA #12



WRIA #12 drains nearly 109,626 acres. 100% of the watershed is contained within the Puget Lowland ecoregion. Rainfall averages 36 inches per year.

Demographics

Land use in the Chambers/Clover Basin



Land Base (in acres)

Federal	24,912	22.7%
State	488	.5%
Local	1,106	1.0%
Tribal	-0-	-0-
Private	83,120	75.8%

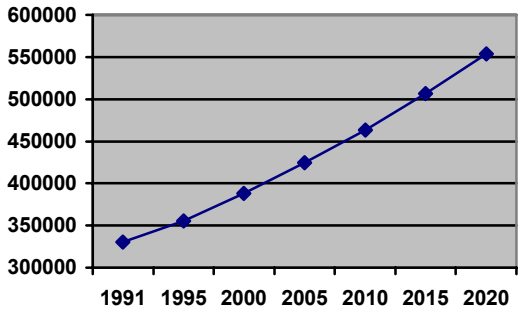
Principal Economic Activity (as total wages)

Agriculture/Forestry	1%
Manufacturing	11%
Retail Trade	20%
Services	27%
Government	22%
Other	19%

Population

There are approximately 355,206 people living in the Chambers-Clover Basin. The primary population centers are Tacoma, Fircrest, and Steilacoom. The majority of people live in unincorporated areas.

Projected population trends



Counties

Pierce (100%)

Special purpose districts

Pierce County Conservation District

Principal Cities

Tacoma	Fircrest
Steilacoom	Ruston
Lakewood	University Place

Reservation Lands

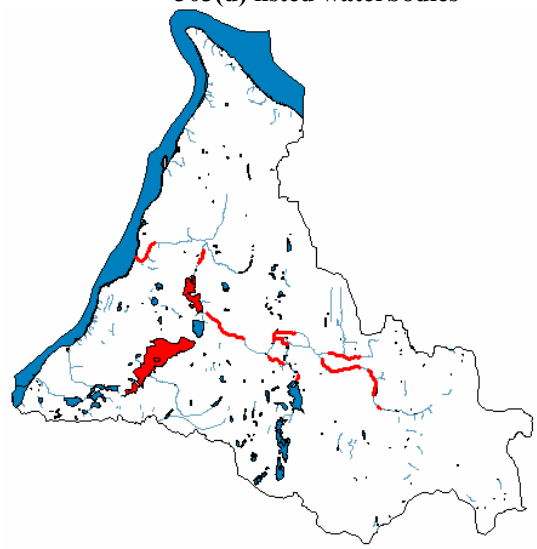
None

General Landscape

This basin has nearly level to rolling glacial outwash and till plains with low gradient streams. Surface material is deep well drained gravelly loam, gravelly sandy loam, and sandy loam. Potential natural vegetation is western hemlock, western red cedar, Douglas fir, and big leaf maple. Mean temperature ranges from 33/45° (winter) to 52/77° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) listed Problem Areas

Fecal Coliform in Chambers Creek, Clover Creek, Snake Lake, Unnamed Creek (tributary to Clover Creek at 99th Street), Unnamed Creek (tributary to Clover Creek at Bingham Ave.), and Unnamed Creek (tributary to Clover Creek at Brookdale Rd.)

High Temperature in Chambers Creek, Clover Creek, and Spanaway Creek

Dissolved Oxygen in Clover Creek and Snake Lake

Metals in Chambers Creek

Nutrients in American Lake, Snake Lake, and Steilacoom Lake

PCBs in Chambers Creek

Sediment Bioassay in Steilacoom Lake

Total Maximum Daily Loads

4 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates –- Levels detected >5mg/L

Pesticides – Pesticides have been detected in wells

Sole Source Aquifer

Central Pierce County Aquifer

Water Quantity

Over appropriated; high growth

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

Status undetermined

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

Salmonid Stock Status

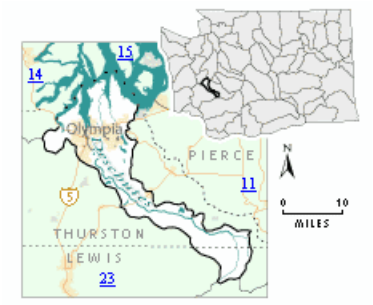
Impaired

Water Quality Programs in WRIA #12

1. TMDL for South Puget Sound
2. TMDL for Steilacoom Lake
3. TMDL for Chambers Creek
4. TMDL for Wapato Lake
5. Chambers-Clover Creek Advisory Committee, Pierce County
6. Clover Creek Basin Plan, Pierce County Water Program
7. American Lake Watershed Management Plan, City of Lakewood/Chambers-Clover Creek Basin Advisory Committee
8. WAC 400-12 Chambers-Clover Creek TMDL Watershed Plan, Pierce County Water Program
9. Watershed Education Program, Pierce County Public Works
10. Stormwater Planning, City of Tacoma
11. Wellhead Protection Implementation Strategies, Tacoma Public Utilities
12. 2514 Chambers/Clover Creek Management Plan, Tacoma/Pierce Health
13. Puget Sound Indicator Project (PSH 2002), PSAT
14. Fecal Coliform & Paralytic Shellfish Poisoning Monitoring (Puget Sound Ambient Monitoring Program – PSAMP), DOH

15. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
16. Digital Coastal Atlas, DOE
17. Estuarine Health Indicator Project, PSWQAT
18. Biotoxins Monitoring Program, DOH
19. Commercial Shellfish Growing Area Classification Program, DOH
20. Recreational Shellfish Program, DOH
21. Stream Team, Pierce CD
22. Small Farm Planning Program, Pierce CD
23. Dairy Waste Management Program, Pierce CD

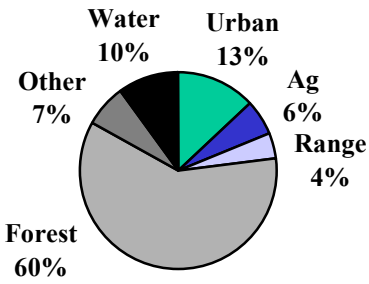
Deschutes Basin - WRIA #13



Located in southern end of Puget Sound, 90% of this basin is in Thurston County, and 10% in Lewis County. The basin encompasses about 189,721 acres and is part of the Puget Lowland Ecoregion.

Demographics

Land Use in Deshutes Basin



Land Base (in acres)

Federal	5,592	3.0%
State	6,709	3.5%
Local	244	.1%
Tribal	-0-	-0-
Private	117,176	93.4%

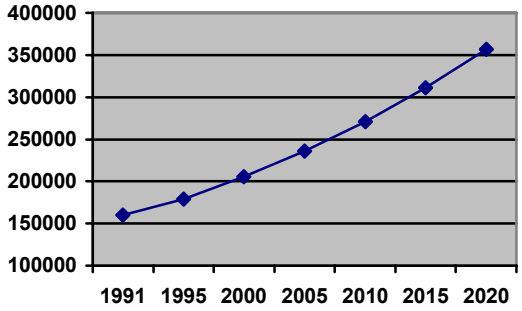
Principal Economic Activity (as total wages(

Government	- 40%
Services	- 21%
Retail Trade	- 18%
Other	- 11%

Population

There are approximately 200,184 people living in the Deschutes River Basin. The primary population centers are Olympia, Lacey, and Rainier. The majority of people live in unincorporated areas.

Projected population trends



Counties

Thurston (90%)
Lewis (10%)

Special purpose districts

Conservation Districts: Thurston; Lewis
Port of Olympia

Principal Cities

Olympia	Lacey
Tumwater	Rainier

Reservation Lands

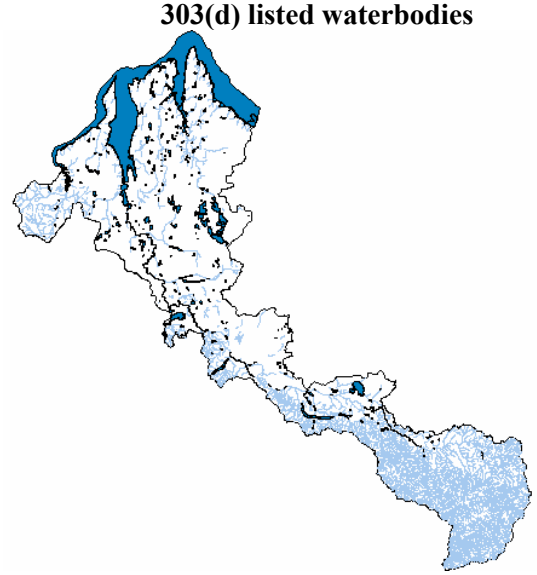
None

General Landscape

This basin has nearly level to rolling glacial outwash and till plains with low gradient streams. Surface material is deep well drained gravelly loam, gravelly sandy loam, and sandy loam. Potential natural vegetation is western hemlock, western red cedar, Douglas fir, and big leaf maple. Mean temperature ranges from 33/45° (winter) to 52/77° (summer).

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) listed Problem Areas

Fecal Coliform in Ayer Creek, Capitol Lake, Deschutes River, Dobbs Creek, Henderson Inlet, Indian Creek, Mission Creek, Moxlie Creek, Nisqually Reach/Drayton Passage, Riechel Creek, Sleepy Creek, Woodard Creek, and Woodland Creek

High Temperature in Deschutes River Huckleberry Creek, and Woodland Creek

Dissolved Oxygen in Ayer Creek, Budd Inlet, Henderson Inlet, Peale Passage, Pickering Passage, Sleepy Creek, Squaxin Passage, Woodard Creek, and Woodland Creek

pH in Ayer Creek, Budd Inlet, Deschutes River, Dobbs Creek, McLane Creek, Peale Passage, Pickering Passage, Sleepy Creek, Squaxin Passage, and Woodard Creek

Metals in Budd Inlet

Organics in Budd Inlet

Nutrients in Capitol Lake

Low Instream Flow in Deschutes River and Woodland Creek
PCBs in Budd Inlet and Ward Lake

Sediment Bioassay in Budd Inlet

Large Woody Debris in Deschutes River

Fine Sediments in Deschutes River

Total Maximum Daily Loads
13 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality
Nitrates – Levels detected >5mg/L
Pesticides – Have been detected in wells

Sole Source Aquifer
None

Water Quantity
Flows set, adequacy of flow level not determined; high growth

Air Quality
Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health
Commercial Shellfish Growing Areas
Areas threatened and impaired

Domestic Water Supply
Within this WRIA are large community water systems that significantly utilize surface water sources.

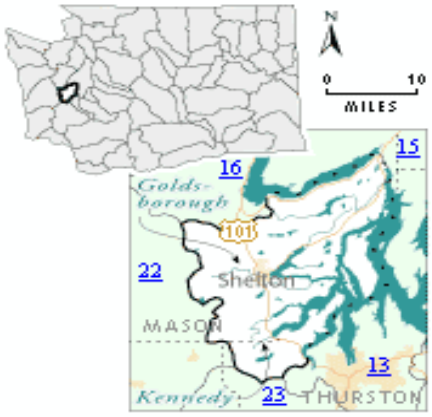
Salmonid Stock Status
Healthy

3. Water Quality Programs

1. TMDL for Henderson Inlet
2. TMDL for Woodland Creek
3. TMDL for Woodard Bay
4. TMDL for Dobbs Creek
5. TMDL for Libbey Creek
6. Deschutes Rivers Watershed Action Plan
7. Capitol Lake Phase II Restoration
8. Chambers, Ward, and Hewitt
9. Comprehensive Drainage Basin Plan

10. City of Lacey Wetland Protection Plan
11. City of Tumwater Wellhead Protection Plan
12. Henderson Inlet Watershed Action Plan
13. Lake Lawrence Phase I Restoration Plan
14. Long Lake Phase II Restoration
15. North Thurston County Ground Water Management Plan
16. Pattison Lake Phase II Restoration Plan
17. Percival Creek Comprehensive Drainage Basin Plan
18. Deschutes Stream Team onsite sanitary survey
19. Stormwater control program/Stormwater utility
20. Puget Sound Indicator Project (PSH 2002), PSAT
21. Fecal Coliform & Paralytic Shellfish Poisoning Monitoring (Puget Sound Ambient Monitoring Program – PSAMP), DOH
22. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
23. Digital Coastal Atlas, DOE
24. Estuarine Health Indicator Project, PSWQAT
25. Biotoxins Monitoring Program, DOH
26. Commercial Shellfish Growing Area Classification Program, DOH
27. Recreational Shellfish Program, DOH
28. Henderson Water Quality Improvement Program, Thurston CD
29. South Sound Water Quality Program, Thurston CD
30. Farm Planning Program, Thurston CD
31. Water Quality Education Program, Thurston CD
32. Farm/Dairy Nutrient Management Program, Thurston CD
33. Septic O&M Program, Thurston County Health
34. Ambient Monitoring Program, Thurston County Health
35. North County Groundwater Program, Thurston County Health
36. Business Pollution Prevention Program, Thurston County Health

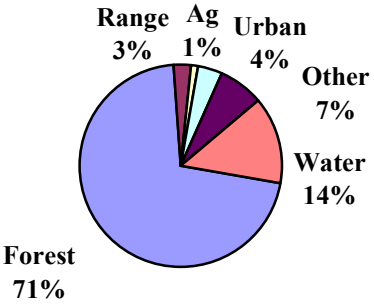
Kennedy-Goldsborough Basin - WRIA #14



Located in southern end of Puget Sound, 85% of this basin lies in Mason County and the remaining 15% is in Thurston County. The basin covers 244,833 acres and is part of the Puget Lowland Ecoregion.

Demographics

Land Use in the Kennedy Basin



Land Base (in acres)

Federal	-0-	-0-
State	13,313	5.4%
Local	-0-	-0-
Tribal	1,086	.4%
Private	230,434	94.2%

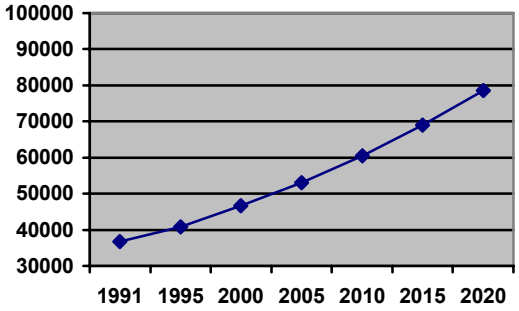
Principal Economic Activity (as total wages)

Agriculture/Forestry	4%
Manufacturing	17%
Retail Trade	17%
Services	18%
Government	29%
Other	15%

Population

There are approximately 45,874 people living in the Kennedy-Goldsborough Basin. The primary population center is Shelton. The majority of people live in unincorporated areas.

Projected population trends



Counties

Mason (85%)
Thurston (15%)

Special purpose districts

Conservation Districts: Mason; Thurston

Principal Cities

Shelton

Reservation Lands

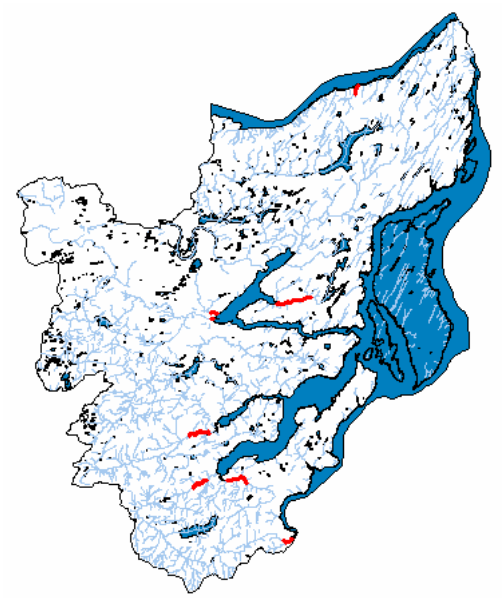
Squaxin Island Tribe

General Landscape

Undulating glacial drift plains with lakes and small, sinuous streams. Coastline is irregularly shaped. It is characterized by many bays and some cliffs. Surface material deep well drained, gravelly sandy loam. Potential natural vegetation is western hemlock, western red cedar, Douglas fir, and some red alder. Mean temperature ranges from 35/44° (winter) to 52/75° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) listed Problem Areas

Fecal Coliform in Burns Creek, Campbell Creek, Case Inlet, Dana Passage, Goldsborough Creek, Great Bend/Lynch Cove, Hammersley Inlet, Happy Hollow Creek, North Bay and Oakland Bay shellfish areas, Pierre Creek, Shelton Creek, Shelton Harbor, Skookum Creek, Uncle John Creek

Dissolved Oxygen in Case Inlet, Dana Passage, Great Bend/Lynch Cove, and Hood Canal

pH in Burns Creek, Great Bend/Lynch Cove, Kennedy Creek, Lynch Cove, Peale passage, Perry Creek, Pickering passage, Pierre Creek, Schneider Creek, Squaxin passage, Twanoh Falls Creek, and Unnamed Creek

Total Maximum Daily Loads

6 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected >5mg/L
Pesticides – Have been detected in wells

Sole Source Aquifer

None

Water Quantity

Flows set, adequacy of flow level not determined; Medium growth

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

Areas threatened and impaired

Domestic Water Supply

No significant use of surface water sources

Salmonid Stock Status

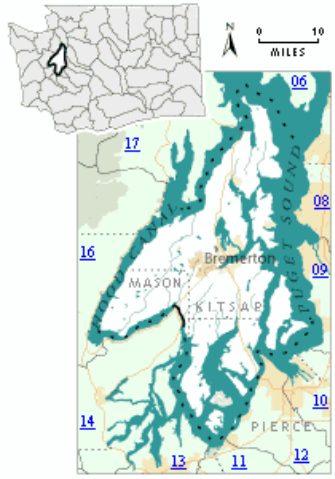
Healthy

3. Water Quality Programs

1. Oakland Bay Watershed Management Plan, Mason County
2. Totten/Little Skookum Watershed Action Plan, Mason County Health
3. Onsite Sewage System Operation & Maintenance Program, Mason County Health
4. Water Quality Monitoring Program, Mason County Health
5. Wellhead Protection, Mason County Health
6. Mason Matters, Mason County Health
7. Mason County Critical Resource Ordinance, Mason County Community Development
8. Mason County Shoreline Master Program, Mason County Community Development
9. Mason County Comprehensive Plan, Mason County Community Development
10. Mason County Watershed Management Plan, Mason County Community Development
11. Mason County Threatened Area Response Strategy, Mason County Health
12. Salmon Enhancement Program, Puget Sound Salmon Enhancement Group
13. Totten/Little Skookum Nonpoint Source Follow-up Project, Mason County Health

14. Closure Response Strategy, Mason County Health Recreation Shellfish Program, Mason County Health
15. TMDL Response Strategy, Mason County Health
16. Eld Inlet Watershed Action Plan, Thurston County
17. Kennedy Creek Watershed Analysis
18. Lower Hood Canal Watershed Management Plan, Multi-Agency
19. Lower Hood Canal Sanitary Survey, Mason County Health
20. Oakland Bay & Hammersley Inlet Nearshore Inventory, Squaxin Island Tribe/Taylor Shellfish
21. Shoreline Habitats of Hood Canal & Eastern San Juan de Fuca Assessment, UW/ Port Gamble S'Klallam Tribe
22. Puget Sound Indicator Project (PSH 2002), PSAWQT
23. Fecal Coliform & Paralytic Shellfish Poisoning Monitoring (Puget Sound Ambient Monitoring Program – PSAMP), DOH
24. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
25. Digital Coastal Atlas, DOE
26. Estuarine Health Indicator Project, PSWQAT
27. Biotoxins Monitoring Program, DOH
28. Commercial Shellfish Growing Area Classification Program, DOH
29. Recreational Shellfish Program, DOH
30. Puget Sound Work-plan Grant, Mason CD
31. Conservation Reserve Enhancement Program (CREP), Mason CD
32. South Sound Water Quality Program, Thurston CD
33. Farm Planning Program, Thurston CD
34. Water Quality Education Program, Thurston CD
35. Farm/Dairy Nutrient BMP Implementation Program, Thurston CD
36. Septic O&M Program, Thurston County Health
37. Ambient Monitoring Program, Thurston County Health
38. North County Groundwater Program, Thurston County Health
39. Business Pollution Prevention Program, Thurston County Health

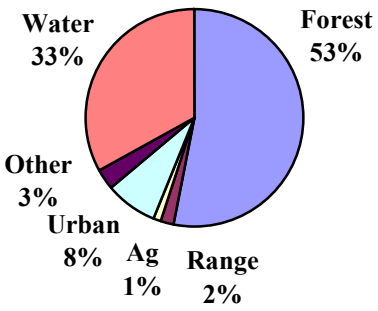
Kitsap Basin - WRIA #15



WRIA #15 encompasses nearly 632,055 acres. This is wholly contained within the Puget Lowland ecoregion and over half is forestland. Rainfall averages 44 inches a year.

Demographics

Land Use in the Kitsap Basin



Land Base (in acres)

Federal	9,127	1.4 %
State	47,663	7.5%
Local	7,714	1.2%
Tribal	4,563	.7%
Private	562,988	89.2%

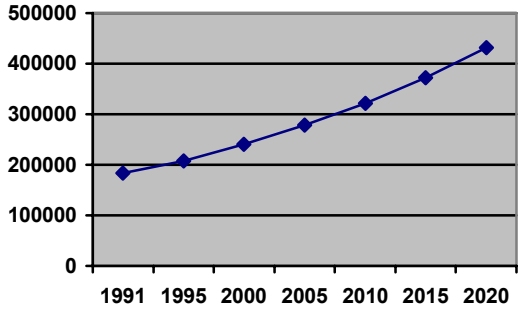
Principal Economic Activity (as total wages)

Retail Trade	21%
Services	24%
Government	35%
Construction	5%
Other	15%

Population

There are approximately 270,334 people living in the Kitsap Basin. The primary population centers are Bremerton, Port Orchard, and Poulsbo. The majority of people live in unincorporated areas.

Projected population trends



Counties

Kitsap (57%)	Pierce (22%)
Mason (13%)	King (8%)

Special Purpose Districts

Conservation Districts: Kitsap; Pierce; Mason; King
PUD #1 of Kitsap County

Principal Cities

Bremerton	Port Orchard
Poulsbo	Gig Harbor
Winslow	City of Bainbridge

Reservation Lands

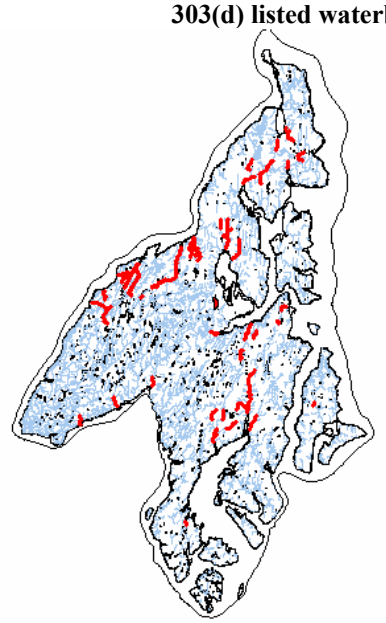
Port Gamble S'Klallam Tribe
Suquamish Tribe

General Landscape

Undulating glacial drift plains with lakes and small, sinuous streams. Coastline is irregularly shaped. It is characterized by many bays and some cliffs. Surface material is glacial till deposited during the Vashon Glaciation. Underlying materials include stratified clays, sands, and some gravel. Potential natural vegetation is western hemlock, western red cedar, Douglas fir, and some red alder. Mean temperature ranges from 35/44° (winter) to 52/75° (summer).

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) listed Problem Areas

Fecal Coliform in Annapolis Creek, Barker Creek, Bear Creek, Beaver Creek, Blackjack Creek, Burley Creek, Carr Inlet, Case Inlet, Clear Creek, Dana Passage, Dogfish Creek, Dyes Inlet and Port Washington Narrows, Gamble Creek, Gorst Creek, Great Bend/Lynch Cove, Grovers Creek, Henderson Bay, Huge Creek, Kitsap Lake, Little Minter Creek, Martha-John Creek, Mayo Creek, Minter Creek, Nisqually Reach/Drayton Passage, Picnic Creek, Port Gamble Bay, Private Creek, Purdy Creek, Ravine Creek, Shoofly Creek, Sinclair Inlet, Stimson Creek, Union River, Unnamed Creek

High Temperature in Big Beef Creek, Gamble Creek, Mayo Creek, and Miller Lake Creek

Dissolved Oxygen in Carr Inlet, Great Bend/Lynch Cove, Henderson Bay, Hood Canal and Quartermaster Harbor

pH in Case Inlet, Dana Passage, Great Bend/Lynch Cove, Lagoon Creek, Little Mission Creek, Mayo Creek, Picnic Creek, Private Creek, Unnamed Creek

Metals in, Dyes Inlet and Port Washington Narrows, Eagle Harbor, Hood Canal, Port Washington Narrows, and Sinclair Inlet

Pesticides in Agate Passage, Dyes Inlet and Port Washington Narrows, Eagle Harbor, Hood Canal, Port Gamble Bay, Port Orchard Passage, Quartermaster Harbor, Rich Passage, Sinclair Inlet and Tacoma Narrows

Organics in Dyes Inlet and Port Washington Narrows, Eagle Harbor, Hood Canal, and Sinclair Inlet

Nutrients in Kitsap Lake

PCBs in Eagle Harbor and Sinclair Inlet

Sediment Bioassay in Dyes Inlet and Port Washington Narrows, and Sinclair Inlet

Turbidity in Dogfish Creek

Fish Habitat in Unnamed Creeks in the following creek systems (Stavis, Anderson, Big Beef, Boyce, Harding, and Little Anderson)

Total Maximum Daily Loads

12 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected >10mg/L
Pesticides – Have been detected in wells

Sole Source Aquifer

Vashon-Maury Island Aquifer

Water Quantity

Flows set, adequcy of flow levels not yet determined; high growth

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health

Commercial Shellfish Growing Areas
Areas threatened and impaired

Domestic Water Supply
Within this WRIA are large community water systems that significantly utilize surface water sources.

Salmonid Stock Status
Threatened

3. Water Quality Programs

1. TMDL for Sinclair Inlet
2. TMDL for Gorst Creek
3. TMDL for Union River
4. Dyes Inlet Watershed Implementation Plan, Department of Community Development (DCD)
5. Sinclair Inlet Watershed Implementation Plan, DCD
6. Upper Hood Canal Watershed Implementation Plan, DCD
7. Pollution ID & Corrections Program, Kitsap County Health/Kitsap CD
8. Business Pollution Prevention Program, Kitsap County Health
9. Trend Water Quality Monitoring Program (SSWM), Kitsap County Health
10. Septic Operation and Maintenance Program, Kitsap County Health
11. Kitsap Health District Public Outreach and Education
12. Stream Team, Kitsap DCD
13. Wellhead Protection Program, Kitsap County Health
14. Boater Waste Control Program, Kitsap County Health
15. Swimming Beach Monitoring Program, Kitsap County Health
16. Stormwater System Screening Program, Kitsap Public Works
17. Puget Sound Naval Shipyard Project ENVVEST, DOE/EPA/PSNS
18. Bainbridge Island Nearshore Assessment, City of Bainbridge Island
19. Kitsap County Shoreline Inventory, Kitsap County GIS Group
20. East Kitsap Strategy for Salmon Recovery, East Kitsap Salmon Habitat Restoration Committee/Kitsap Stream Team
21. Surface & Stormwater Management Program (SSWM), Kitsap County
22. Agricultural & Natural Resource Program, Kitsap CD
23. Shoreline Habitats of HC &Eastern SJdF Assessment, UW/ Port Gamble S'Klallam Tribe
24. Puget Sound Indicator Project (PSH 2002), PSWQAT
25. Fecal Coliform & Paralytic Shellfish Poisoning Monitoring (Puget Sound Ambient Monitoring Program – PSAMP), DOH
26. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
27. Digital Coastal Atlas, DOE
28. Estuarine Health Indicator Project, PSWQAT
29. Biotoxins Monitoring Program, DOH
30. Commercial Shellfish Growing Area Classification Program, DOH
31. Recreational Shellfish Program, DOH
32. Conservation Reserve Enhancement program, Mason CD
33. Implementation Grant Program, Mason CD
34. Stream Team, Pierce CD
35. Small Farm Planning Program, Pierce CD
36. Dairy Waste Management Program, Pierce CD
37. Shellfish Watershed Protection Project, Tacoma/Pierce County Health
38. Shellfish Protection Program, Tacoma/Pierce County Health
39. Household Hazardous Waste Education Program, Tacoma/Pierce County Health
40. Onsite Sewage Program, Tacoma/Pierce/Kitsap County Health
41. Lower Hood Canal Watershed Management Plan, Mason County Public Works
42. Lower Hood Canal Sanitary Survey, Mason County Health
43. Onsite Sewage System Operation & Maintenance Program, Mason County Health
44. Water Quality Monitoring Program, Mason County Health
45. Wellhead Protection, Mason County Health
46. Mason Matters, Mason County Health
47. Mason County Critical Resource Ordinance, Mason County Community Development
48. Mason County Shoreline Master Program, Mason County Community Development
49. Mason County Comprehensive Plan, Mason County Community Development

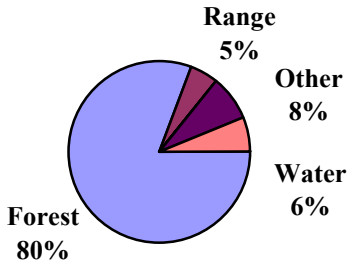
50. Mason County Watershed Management Plan, Mason County Community Development
51. Mason County Threatened Area Response Strategy, Mason County Health
52. Salmon Enhancement Program, Puget Sound Salmon Enhancement Group
53. Nonpoint Pollution Identification Project, Mason County Health
54. Closure Response Strategy, Mason County Health
55. Recreation Shellfish Program, Mason County Health
56. Lower Hood Canal Watershed Implementation Committee
57. TMDL Response Strategy, Mason County Health
58. Chico Basin Watershed Plan, DNR
59. WAC 400-12 Key Peninsula/Gig Harbor/Islands TMDL Watershed Plan, Pierce County Water Program
60. Key Peninsula/Gig Harbor/Islands Watershed Council, Pierce County
61. Gig Harbor Basin Plan, Pierce County Water Program
62. Gig Harbor Community Plan, Pierce County Planning Dept.

Skokomish/Dosewallips - WRIA #16

WRIA #16 is within Mason and Jefferson Counties. This 406,396-acre watershed encompasses three ecoregions: Coast Range, Cascade and Puget Lowlands.

Demographics

Land Use in the Skokomish/Dosewallips



Land Base (in acres)

Federal	275,783	67.9%
State	32,024	7.9%
Local	-0-	-0-
Tribal	4,982	1.2%
Private	93,607	23.0%

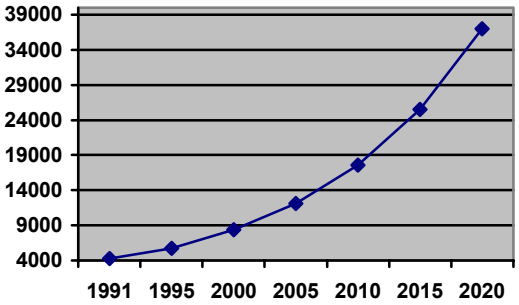
Principal Economic Activity (as total wages)

Government	26%
Retail Trade	23%
Services	22%
Manufacturing	14%
Forestry/Fishing	2%
Other	13%

Population

There are approximately 5,565 people living in the Skokomish-Dosewallips Basin. The primary population centers are Hoodsport and Potlatch. The majority of people live in unincorporated areas.

Projected population trends



Counties

Mason (59%)
Jefferson (41%)

Special purpose districts:

Conservation Districts: Mason; Jefferson County

Principal Cities

Potlach Hoodsport
Brinnon

Reservation Lands

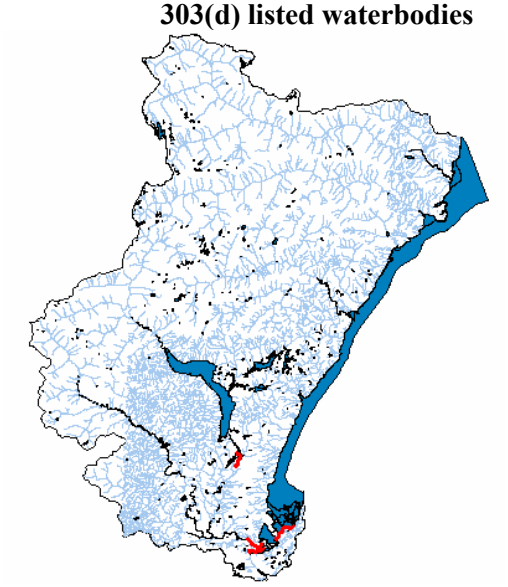
Skokomish Tribe

General Landscape

Glaciated steep higher terrain to low mountains with U-shaped valleys. High gradient streams. Gravelly loam, deep to moderately deep; some silt to silty clay loam. Potential natural vegetation is western hemlock, Douglas fir, red alder, and at higher elevations, Pacific silver fir. Mean temperature ranges from 30/46° (winter) to 50/76° (summer).

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) listed Problem Areas

Fecal Coliform in Hood Canal, Hunter Creek, Purdy Creek, Skokomish River, Ten Acre Creek, and Weaver Creek

Low Instream Flow in Skokomish River

Total Maximum Daily Loads
2 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality
Nitrates – Levels detected >5 mg/L
Pesticides – Have been detected in wells

Sole Source Aquifer
None

Water Quantity
Flows not set, limited growth pressure

Air Quality
Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health
Commercial Shellfish Growing Areas
Areas threatened and impaired

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

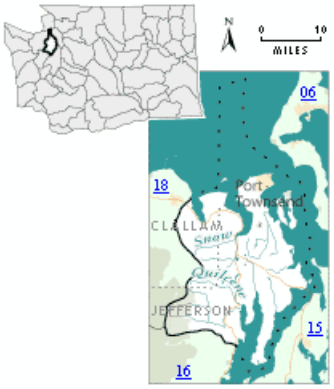
Salmonid Stock Status
Threatened

3. Water Quality Programs

1. TMDL for Purdy Creek
2. TMDL for Skokomish River
3. TMDL for Weaver Creek
4. TMDL for 10-Acre Creek
5. TMDL for Hunter Creek
6. Lower Hood Canal Watershed Action Plan, Mason County Health
7. Skokomish River Comprehensive Flood Hazard Management Plan, Mason County
8. South Fork Skokomish Watershed Analysis
9. US Forest Service Northwest Forest Plan
10. Shoreline Habitats of Hood Canal & Eastern San Juan de Fuca Assessment, UW/ Port Gamble S'Klallam Tribe
11. NWSC Nearshore Habitat Inventory & Evaluation, Northwest Straits Commission
12. Puget Sound Indicator Project (PSH 2002), PSAT
13. Fecal Coliform & Paralytic Shellfish Poisoning Monitoring (Puget Sound Ambient Monitoring Program – PSAMP), DOH
14. Salmon & Steelhead Inventory & Assessment Program, WDFW
15. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
16. Digital Coastal Atlas, DOE
17. Estuarine Health Indicator Project, PSWQAT
18. Biotoxins Monitoring Program, DOH
19. Commercial Shellfish Growing Area Classification Program, DOH
20. Recreational Shellfish Program, DOH
21. Stewardship in Skokomish Watershed Project, Mason CD
22. Conservation Reserve Enhancement program, Mason CD

23. Onsite Sewage System Operation & Maintenance Program, Mason County Health
24. Water Quality Monitoring Program, Mason County Health
25. Wellhead Protection, Mason County Health
26. Mason Matters, Mason County Health
27. Mason County Critical Resource Ordinance, Mason County Community Development
28. Mason County Shoreline Master Program, Mason County Community Development
29. Mason County Comprehensive Plan, Mason County Community Development
30. Mason County Watershed Management Plan, Mason County Community Development
31. Mason County Threatened Area Response Strategy, Mason County Health
32. Surface Water Management Plan, Jefferson County Public Works
33. State Revolving Fund Loan Program for Repair & Upgrade of On-site Sewage Systems, Jefferson County Health
34. On-Site Sewage System Education Program, Jefferson County Health
35. Unified Development Code Ordinance, Jefferson County
36. O & M Program, Jefferson County
37. Salmon Enhancement Program, Puget Sound Salmon Enhancement Group

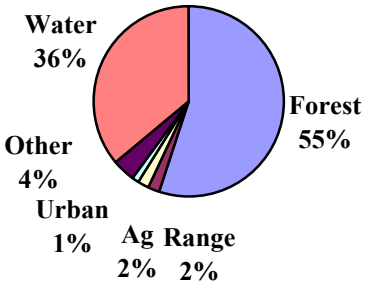
Quilcene/Snow Basin - WRIA #17



WRIA #17 encompasses nearly 401,002 acres. This watershed contains three ecoregions: Puget Lowlands, Coast Range, and the Cascades. Average rainfall is 30 inches per year.

Demographics

Land use in the Quilcene/Snow Basin



Land Base (in acres)

Federal	73,660	18.3%
State	35,469	8.9%
Local	-0-	-0-
Tribal	-0-	-0-
Private	291,873	72.8%

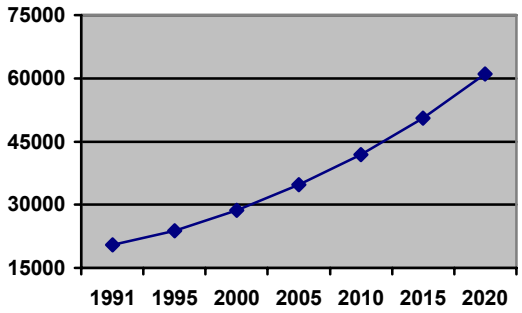
Principal Economic Activity (as total wages)

Government	26%
Retail Trade	23%
Services	22%
Manufacturing	14%
Forestry/Fishing	2%
Other	13%

Population

There are approximately 28,801 people living in the Quilcene-Snow Basin. The primary population center is Port Townsend. The majority of people live in unincorporated areas.

Projected population trends



Counties

Jefferson (86%)
Clallam (14%)

Special purpose districts

Conservation Districts: Jefferson; Clallam
Irrigation Districts: Highland

Principal Cities

Port Townsend
Quilcene
Port Ludlow

Reservation Lands

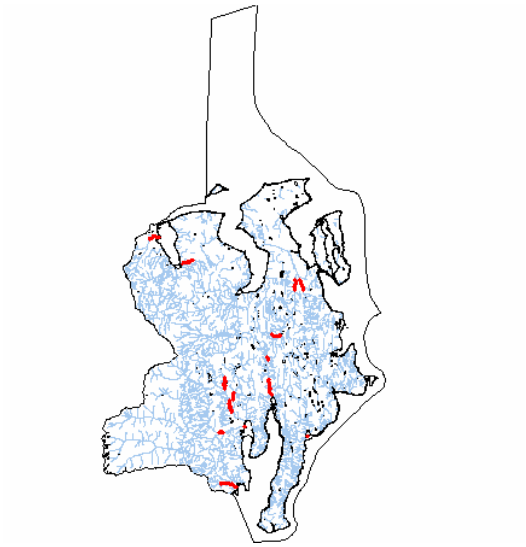
Jamestown S'Klallam Tribe

General Landscape

Glaciated steep higher terrain to low mountains with U-shaped valleys. High gradient streams. Gravelly loam, deep to moderately deep; some silt to silty clay loam. Potential natural vegetation is western hemlock, Douglas fir, red alder, and at higher elevations, Pacific silver fir. Mean temperature ranges from 30/46° (winter) to 50/76° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) listed Problem Areas

Fecal Coliform in Chicken Coop Creek, Chimacum Creek, Dabob Bay, Johnson Creek, and Quilcene Bay

High Temperature in Chimacum Creek, Donovan Creek, Leland Creek, Little Quilcene River, Ripley Creek, Tarboo Creek, and Thorndike Creek

Dissolved Oxygen in Sequim Bay

pH in Sequim Bay

Low Instream Flow in Big Quilcene River

Fish Habitat in Big Quilcene River, Jackson Creek, and Marple Creek

Total Maximum Daily Loads

4 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected >10 mg/L
Pesticides – Have been detected in wells

Sole Source Aquifer

Marrowstone Island Aquifer

Water Quantity

Over appropriated; medium growth

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

Areas impaired

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

Salmonid Stock Status

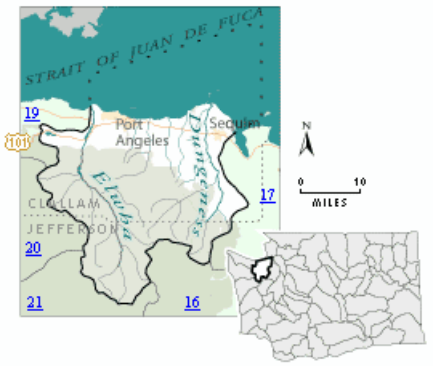
Threatened

3. Water Quality Programs

1. Surface Water Management Plan, Jefferson County Public Works
2. Port Ludlow Watershed Implementation Program, Jefferson County Natural Resources Division
3. Port Ludlow Surface Water Management District, Jefferson County Public Works
4. Unified Development Code Ordinance, Jefferson County
5. O & M Program, Jefferson County
6. Sequim Bay Watershed Action Plan, Clallam County
7. Dungeness/Quilcene Water Resources Management Plan, Clallam County
8. Quilcene/Dabob Bay Watershed Implementation Program, Jefferson County Natural Resources Division
9. A Restoration Feasibility Study for the Big Quilcene River, Jefferson County
10. US Forest Service Northwest Forest Plan
11. Shoreline Habitats of Hood Canal & Eastern San Juan de Fuca Assessment, UW/ Port Gamble S'Klallam Tribe

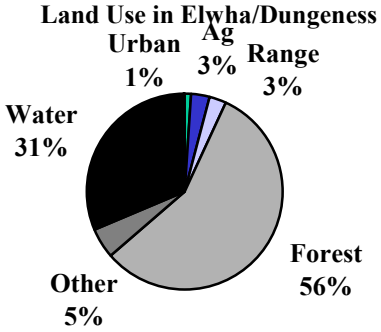
12. NWSC Nearshore Habitat Inventory & Evaluation, Northwest Straits Commission
13. Kelp Canopy Monitoring, WDNR
14. Puget Sound Indicator Project (PSH 2002), PSAT
15. Fecal Coliform & Paralytic Shellfish Poisoning Monitoring (Puget Sound Ambient Monitoring Program – PSAMP), DOH
16. Salmon & Steelhead Inventory & Assessment Program, WDFW
17. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
18. Digital Coastal Atlas, DOE
19. Estuarine Health Indicator Project, PSWQAT
20. Biotoxins Monitoring Program, DOH
21. Commercial Shellfish Growing Area Classification Program, DOH
22. Recreational Shellfish Program, DOH
23. State Revolving Fund Loan Program for Repair & Upgrade of On-site Sewage Systems, Jefferson County Health
24. On-Site Sewage System Education Program, Jefferson County Health

Elwha/Dungeness Basin - WRIA #18



WRIA #18 encompasses 650,549 acres. The Straight of Juan de Fuca borders the northern side of this watershed. The average annual rainfall is 52 inches per year.

Demographics



Land Base (in acres)

Federal	330,844	50.9%
State	27,655	4.2%
Local	104	<.1%
Tribal	400	.1%
Private	291,546	44.8%

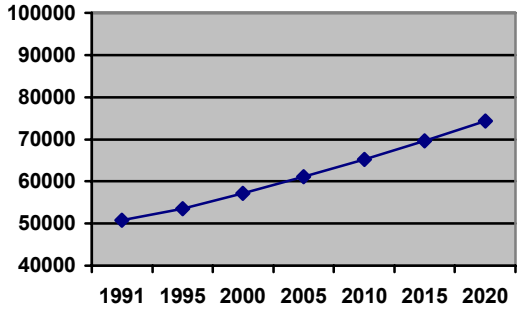
Principal Economic Activity (in total wages)

Government	26%
Retail Trade	23%
Services	22%
Manufacturing	14%
Forestry/Fishing	2%
Other	13%

Population

There are approximately 58,184 people living in the Elwha/Dungeness Basin. The primary population centers are Port Angeles and Sequim. The majority of people live in unincorporated areas.

Projected population trends



Counties

Clallam (82%) Jefferson (18%)

Special purpose districts

Conservation Districts: Clallam; Jefferson
Irrigation Districts: Agnew; Cline; Dungeness; Highland

Principal Cities

Port Angeles
Sequim

Reservation Lands

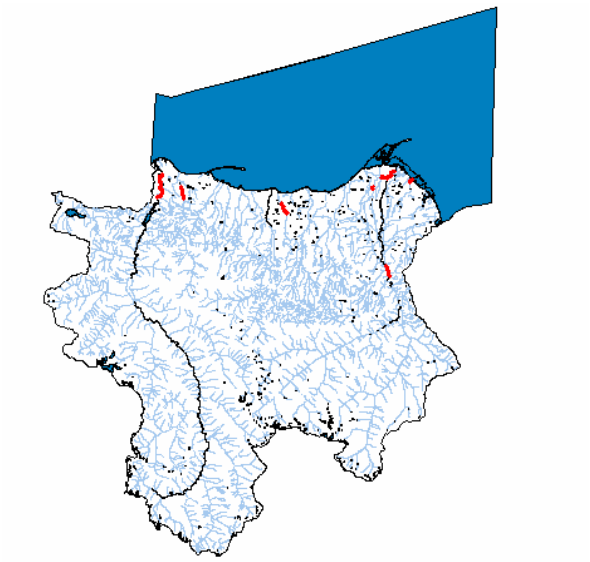
Elwha Klallam Tribe

General Landscape

Rolling glacial till plains with small, low to medium gradient streams. Soils are typically moderately deep, gravelly sandy loam. Potential natural vegetation is western hemlock, western red cedar, Douglas fir and grassland. Mean temperature ranges from 36/45° (winter) to 51/64° (summer).

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Bagley Creek, Bell Creek, Cassalery Creek, and Matriotti Creek

High Temperature in Dry Creek and Elwha River

Dissolved Oxygen in Port Angeles Harbor

Low Instream Flow in Dungeness River

PCBs in Elwha River

Total Maximum Daily Loads
3 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected >10 mg/L
Pesticides – Have been detected in public wells

Sole Source Aquifer
None

Water Quantity
Over appropriated; medium growth

Air Quality
Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health
Commercial Shellfish Growing Areas
Areas threatened and impaired

Domestic Water Supply
Within this WRIA are large community water systems that significantly utilize surface water sources.

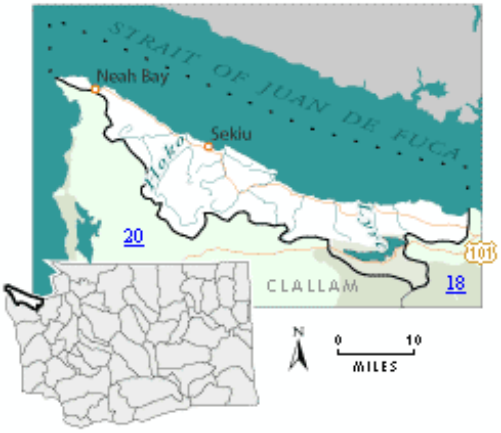
Salmonid Stock Status
Threatened

3. Water Quality Programs

1. TMDL for Dungeness Bay
2. TMDL for Expansion
3. TMDL for Straight of Juan de Fuca
4. Dungeness/Quilcene Water Resource Management Plan, Clallam County
5. Dungeness River Watershed Action Plan, 1995 Clallam County
6. Dungeness River Restoration Plan, 1995
7. US Forest Service Northwest Forest Plan
8. Clallam County Septic Sense, Clallam County
9. Clallam County Water Quality Cleanup Fund, Clallam County
10. Sequim/Dungeness Aquifer Protection Plan, Clallam County
11. Stormwater Pollution Prevention, Clallam County
12. Clallam Water Quality Implementation, Clallam County CD
13. Nearshore Habitat Mapping of Central and Western Straight of Juan de Fuca, WDFW
14. Forage Fish Project, Island County Marine Resources Committee
15. Conservation Reserve Enhancement Program (CREP), Clallam CD
16. Small Farm BMP Program, Clallam CD
17. Irrigation Piping Program, Clallam CD
18. Horses for Clean Water, Clallam CD
19. Farm Plan Implementation Program, Clallam CD
20. Shoreline Habitats of Hood Canal & Eastern San Juan de Fuca Assessment, UW/ Port Gamble S'Klallam Tribe

21. NWSC Nearshore Habitat Inventory & Evaluation, Northwest Straits Commission
22. Kelp Canopy Monitoring, WDNR
23. Puget Sound Indicator Project (PSH 2002), PSAT
24. Fecal Coliform & Paralytic Shellfish Poisoning Monitoring (Puget Sound Ambient Monitoring Program – PSAMP), DOH
25. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
26. Digital Coastal Atlas, DOE
27. Estuarine Health Indicator Project, PSWQAT
28. Biotoxins Monitoring Program, DOH
29. Commercial Shellfish Growing Area Classification Program, DOH
30. Recreational Shellfish Program, DOH
31. Surface Water Management Plan, Jefferson County Public Works

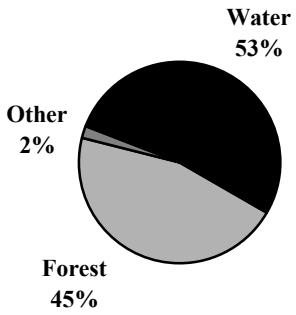
Lyre-Hoko Basin - WRIA #19



WRIA #19 encompasses 494,359 acres. This watershed is totally contained within the Coastal Range ecoregion. Average annual rainfall is 74 inches per year.

Demographics

Land Use in Lyre/Hoko Basin



Land Base (in acres)

Federal	47,022	9.4%
State	55,283	11.2%
Local	-0-	-0-
Tribal	9,639	2.0%
Private	382,415	77.4%

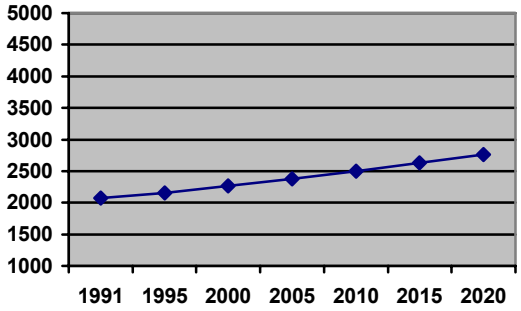
Principal Economic Activity (as total wages)

Manufacturing	11%
Retail Trade	24%
Services	23%
Government	25%
Forestry/Agriculture	2%
Other	15%

Population

There are approximately 2,156 people living in the Lyre-Hoko Basin. The primary population centers are Neah Bay and Clallam Bay. The majority of people live in unincorporated areas.

Projected population trends



Counties

Clallam (100%)

Special purpose districts

Clallam Conservation District

Principal Cities

Neah Bay Clallam Bay
Pysht Joyce

Reservation Lands

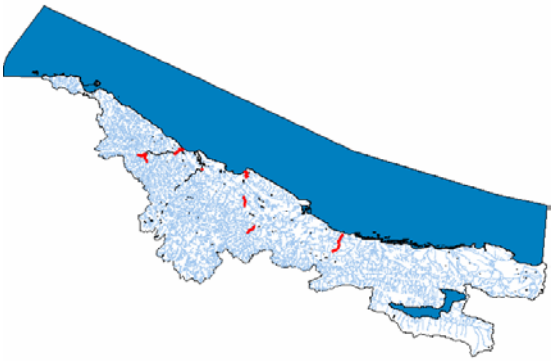
Makah Tribe

General Landscape

Low mountains with U-shaped valleys and high gradient streams. Soils are typically gravelly loam and very gravelly loam. Potential natural vegetation is western hemlock, western red cedar, and some Douglas fir. Mean temperature ranges from 30/45° (winter) to 48/72° (summer).

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) listed Problem Areas

High Temperature in Clallam River, Deep Creek, Green Creek, Little Hoko River and Sekiu River

Fine Sediment in Deep Creek

Total Maximum Daily Loads

1 TMDL required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels not detected above 5 mg/L
Pesticides – Have been detected in public wells

Sole Source Aquifer

None

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

Areas threatened and impaired

Domestic Water Supply

No significant use of surface water sources

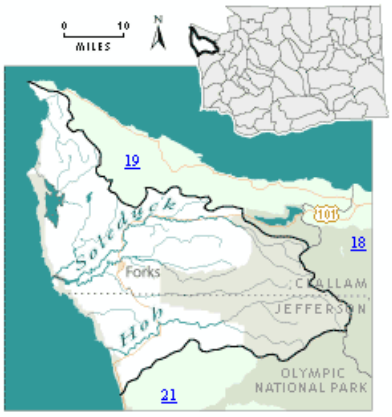
Salmonid Stock Status

Threatened

3. Water Quality Programs

1. An assessment of physical and biological conditions within the Deep Creek Watershed, North Olympic Washington, 1995 Lower Elwha Klallam Tribe et al
2. Nearshore Habitat Mapping of Central and Western Straight of Juan de Fuca, WDFW
3. Conservation Reserve Enhancement Program (CREP), Clallam CD
4. Small Farm BMP Program, Clallam CD
5. Irrigation Piping Program, Clallam CD
6. Horses for Clean Water, Clallam CD
7. Farm Plan Implementation Program, Clallam CD
8. NWSC Nearshore Habitat Inventory & Evaluation, Northwest Straits Commission
9. Kelp Canopy Monitoring, WDNR
10. Puget Sound Indicator Project (PSH 2002), PSAT
11. Fecal Coliform & Paralytic Shellfish Poisoning Monitoring (Puget Sound Ambient Monitoring Program – PSAMP), DOH
12. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
13. Digital Coastal Atlas, DOE
14. Estuarine Health Indicator Project, PSWQAT
15. Biotoxins Monitoring Program, DOH
16. Commercial Shellfish Growing Area Classification Program, DOH
17. Recreational Shellfish Program, DOH

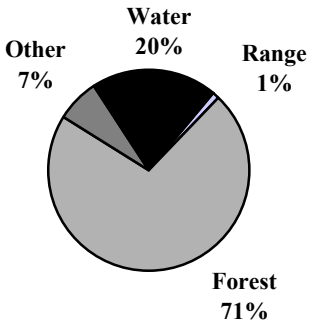
Soleduc Basin - WRIA #20



WRIA #20 encompasses 770,178 acres. The Coastal Range and the Cascades ecoregions make up this watershed. Average annual rainfall is 111 inches per year.

Demographics

Land Use in the Soleduc Basin



Land Base (in acres)

Federal	356,935	46.3%
State	133,646	17.3%
Local	-0-	-0-
Tribal	19,953	2.7%
Private	259,644	33.7%

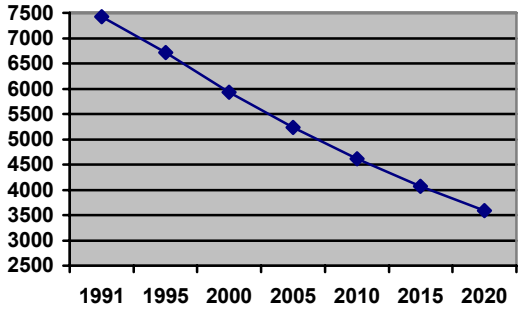
Principal Economic Activity (as total wages)

Manufacturing	11%
Retail Trade	24%
Services	23%
Government	25%
Forestry/Agriculture	2%
Other	15%

Population

There are approximately 6,019 people living in the Soleduc Basin. The primary population center is Forks. The majority of people live in unincorporated areas. The population trend is projected to decline.

Projected population trends



Counties

Clallam (65%)
Jefferson (35%)

Special purpose districts

Conservation Districts: Clallam; Jefferson County

Principal Cities

Forks
La Push

Reservation Lands

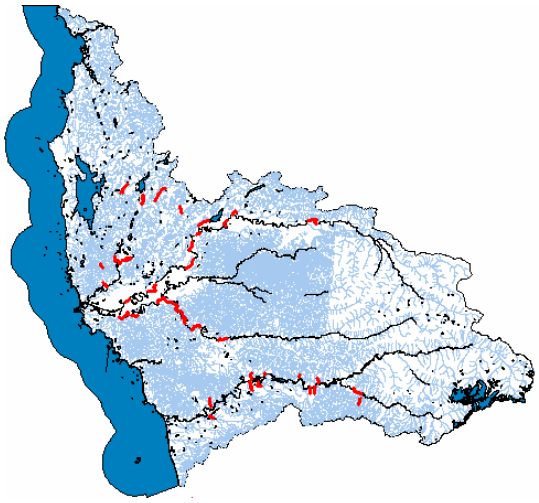
Hoh Tribe
Makah Tribe
Quileute Tribe

General Landscape

Coastal headlands and upland terraces with medium to high gradient streams. Typical soils are mostly deep, silt loam. Potential natural vegetation are sitka spruce, western hemlock, and western red cedar. Mean temperature ranges from 36/48° (winter) to 52/68° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) listed Problem Areas

High Temperature in Alder Creek, Anderson Creek, Beaver Creek, Bogachiel River, Canyon Creek, Coal Creek, Crooked Creek, Dickey River, Elk Creek, Fisher Creek, Lake Creek , Line Creek, Maple Creek, Maxfield Creek, Nolan Creek, Owl Creek, Rock Creek, Soleduck River, Split Creek, Tower Creek, Willoughby Creek, and Winfield Creek

Dissolved Oxygen in Bogachiel River, Lake Creek, and Soleduck River

Total Maximum Daily Loads

2 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels not detected above 5 mg/L
Pesticides – Have not been detected in public wells

Sole Source Aquifer

None

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

Undetermined

Domestic Water Supply

No significant use of surface water sources

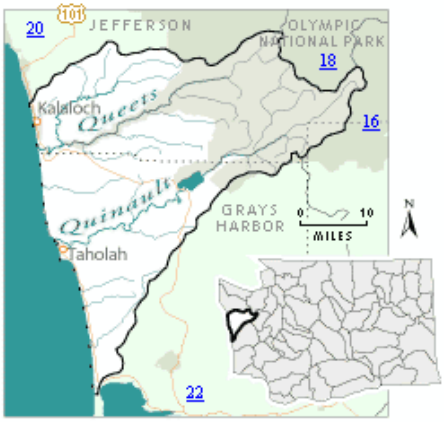
Salmonid Stock Status

Threatened

3. Water Quality Programs

1. Dickey River Watershed Analysis, DNR
2. US Forest Service Northwest Forest Plan
3. Forage Fish Project, Island County Marine Resources Committee
4. Conservation Reserve Enhancement Program (CREP), Clallam CD
5. NWSC Nearshore Habitat Inventory & Evaluation, Northwest Straits Commission
6. Kelp Canopy Monitoring, WDNR
7. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
8. Digital Coastal Atlas, DOE
9. Estuarine Health Indicator Project, PSWQAT
10. Biotoxins Monitoring Program, DOH
11. Commercial Shellfish Growing Area Classification Program, DOH
12. Recreational Shellfish Program, DOH
13. Surface Water Management Plan, Jefferson County Public Works
14. Unified Development Code Ordinance, Jefferson County
15. O & M Program, Jefferson County

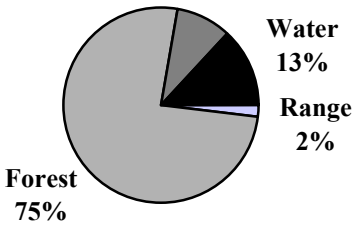
Queets-Quinault Basin - WRIA #21



WRIA #21 encompasses nearly 749,709 acres. Located in the Pacific NW portion of the state, this watershed receives 134 inches of rainfall per year. The Coastal Range and Cascades make up the ecoregion for this watershed.

Demographics

Land Use in the Queets Basin



Land Base (in acres)

Federal	322,128	42.9%
State	112,504	15.1%
Local	-0-	-0-
Tribal	203,912	27.2%
Private	111,165	14.8%

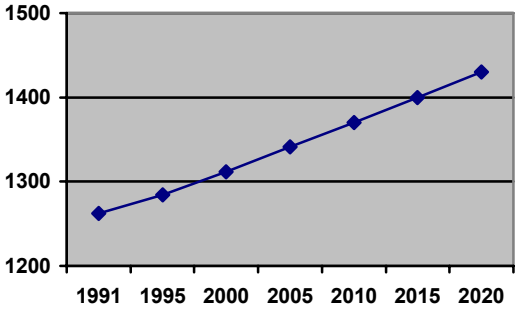
Principal Economic Activity (as total wages)

Manufacturing	11%
Retail Trade	24%
Services	23%
Government	25%
Forestry/Agriculture	2%
Other	15%

Population

There are approximately 1,384 people living in the Queets-Quinault Basin. The primary population centers are Ocean City and Moclips. The majority of people live in unincorporated areas.

Projected population trends



Counties

Jefferson (56%) Grays Harbor (43%)
Mason (<1%)

Special purpose districts

Conservation Districts: Jefferson; Grays Harbor; Mason

Principal Cities

Ocean City Moclips
Taholah Kalaloch

Reservation Lands

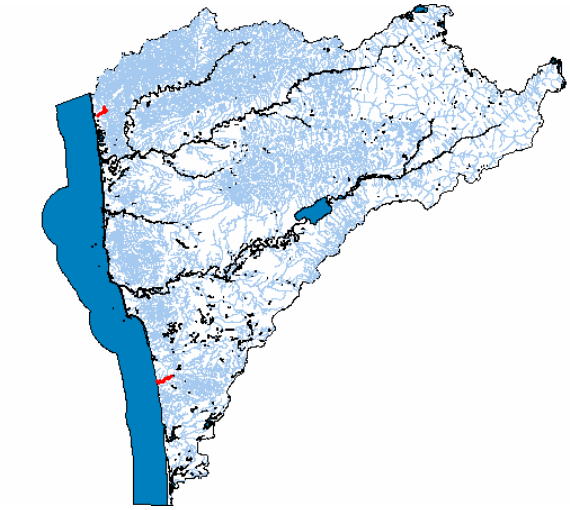
Quinault Tribe

General Landscape

Coastal headlands and upland terraces with medium to high gradient streams. Typical soils are mostly deep, silt loam. Potential natural vegetation are sitka spruce, western hemlock, and western red cedar. Mean temperature ranges from 36/48° (winter) to 52/68° (summer).

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) listed Problem Areas

Fecal Coliform in Joe Creek

High Temperature in Kalaloch Creek

Dissolved Oxygen in Joe Creek

Total Maximum Daily Loads

1 TMDL required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels not detected above 5 mg/L
Pesticides – Have been detected in public wells

Sole Source Aquifer

None

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health

Commercial Shellfish Growing Areas
Areas impaired

Domestic Water Supply

No significant use of surface water sources

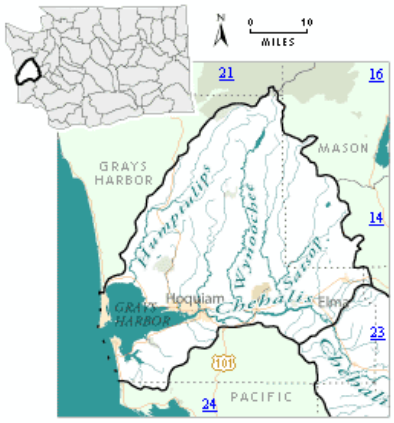
Salmonid Stock Status

Threatened

3. Water Quality Programs

1. US Forest Service Northwest Forest Plan
2. Forage Fish Project, Island County Marine Resources Committee
3. Conservation Reserve Enhancement Program (CREP), Clallam CD
4. NWSC Nearshore Habitat Inventory & Evaluation, Northwest Straits Commission
5. Kelp Canopy Monitoring, WDNR
6. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
7. Digital Coastal Atlas, DOE
8. Estuarine Health Indicator Project, PSWQAT
9. Biotoxins Monitoring Program, DOH
10. Commercial Shellfish Growing Area Classification Program, DOH
11. Recreational Shellfish Program, DOH
12. Surface Water Management Plan, Jefferson County Public Works

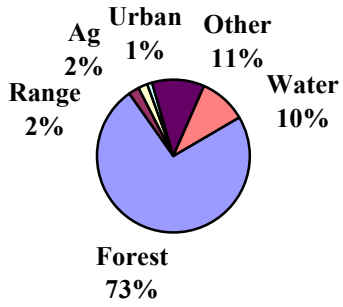
Lower Chehalis Basin - WRIA #22



WRIA #22 encompasses about 907,637 acres. Bordering the Pacific Ocean, this watershed is part of the Coast Range and Puget Lowland ecoregions. Average rainfall is 98 inches per year.

Demographics

Land use in the Lower Chehalis



Land Base (in acres)

Federal	127,743	14.1%
State	22,575	2.5%
Local	11,021	1.2%
Tribal	-0-	-0-
Private	746,298	82.2%

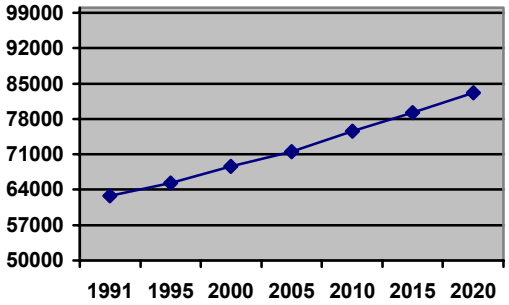
Principal Economic Activity (as total wages)

Agriculture/Forestry	3%
Manufacturing	20%
Retail Trade	21%
Services	21%
Government	21%
Other	14%

Population

There are approximately 67,333 people living in the Lower Chehalis Basin. The primary population centers are Aberdeen, Hoquiam, and Montesano. The majority of people live in unincorporated areas.

Projected population trends



Counties

Grays Harbor (84%) Mason (15%)
Jefferson (<1%) Thurston (<1%)
Pacific (<1%)

Special purpose districts

Conservation Districts: Grays Harbor; Mason

Principal Cities

Aberdeen Hoquiam
Montesano Elma
Ocean Shores Westport

Reservation Lands

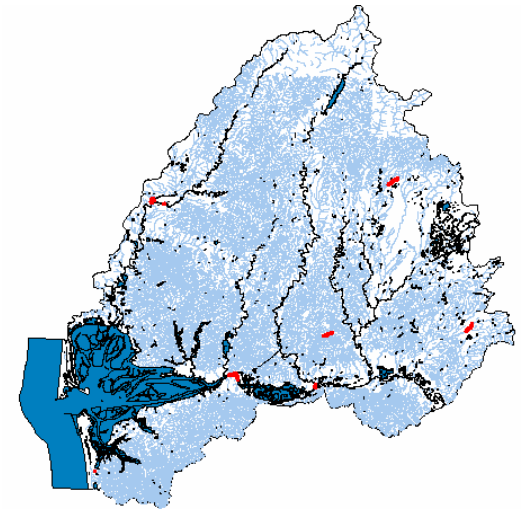
None

General Landscape

This basin contains a marine estuary, terraces, sand dunes, and spits, and is characterized by low, rolling hills and undulating glacial drift plains. Soils are typically deep silt loam to gravelly sandy loam. Potential natural vegetation is western hemlock, western red cedar, and Douglas fir. Mean temperature ranges from 31/46° (winter) to 50/76° (summer).

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) listed Problem Areas

Fecal Coliform in Chehalis River and Grays Harbor

High Temperature in Black Creek, Chehalis River, Humptulips River, Rabbit Creek, Wildcat Creek, and Wynoochee River

Pesticides in Grays Harbor County Drainage Ditch NO.1

Total Maximum Daily Loads
3 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality
Nitrates – Levels not detected above 5 mg/L
Pesticides – Have been detected in public wells

Sole Source Aquifer
None

Water Quantity
Flows set inadequate; need to be increased

Air Quality
(From windblown dust)
No concerns

Public Health
Commercial Shellfish Growing Areas
Areas threatened and impaired

Domestic Water Supply
Within this WRIA are large community water systems that significantly utilize surface water sources.

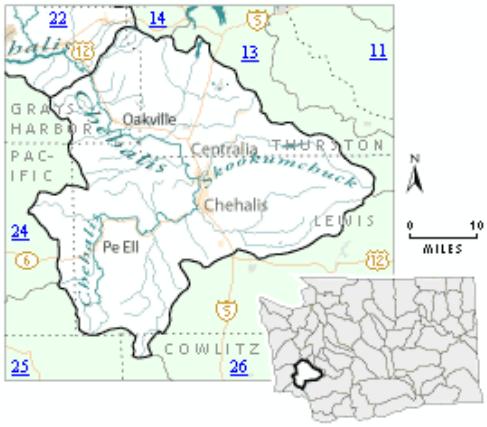
Salmonid Stock Status
Healthy

3. Water Quality Programs

1. TMDLs for Grays Harbor
2. TMDL for Duck Lake
3. TMDLs for Wildcat Creek
4. TMDL for Rabbit Creek
5. US Forest Service Northwest Forest Plan
6. Chehalis River Basin Watershed Action Plan, 1992, Lewis CD
7. West Satsop Watershed Analysis, 1995 Weyerhaueser/Simpson
8. Chehalis River Basin Fishery Resources: Status, Trends, and Restoration Goals. 1992 USFWS
9. Model Watershed Project, Grays Harbor
10. Kelp Canopy Monitoring, WDNR
11. Washington State ShoreZone Inventory, DNR/Coastal & Ocean Resources
12. Digital Coastal Atlas, DOE
13. Estuarine Health Indicator Project, PSWQAT
14. Biotoxins Monitoring Program, DOH
15. Commercial Shellfish Growing Area Classification Program, DOH
16. Recreational Shellfish Program, DOH
17. Chehalis Watershed Restoration Project, Mason CD
18. Conservation Reserve Enhancement program, Mason CD
19. Dairy Nutrient Program, Grays Harbor CD
20. Grays Harbor Water Quality Program, Grays Harbor CD
21. Conservation Reserve Enhancement Program (CREP), Grays Harbor CD
22. Onsite Sewage System Operation & Maintenance Program, Mason County Health

23. Water Quality Monitoring Program, Mason County Health
24. Wellhead Protection, Mason County Health
25. Mason Matters, Mason County Health
26. Mason County Critical Resource Ordinance, Mason County Community Development
27. Mason County Shoreline Master Program, Mason County Community Development
28. Mason County Comprehensive Plan, Mason County Community Development
29. Mason County Watershed Management Plan, Mason County Community Development
30. Mason County Threatened Area Response Strategy, Mason County Health
31. Salmon Enhancement Program, Puget Sound Salmon Enhancement Group

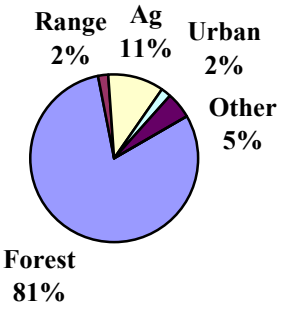
Upper Chehalis Basin - WRIA #23



WRIA #23 encompasses nearly 827,515 acres. Part of the Coastal Range, Puget Lowlands, and Cascades ecoregions, this watershed receives about 57 inches of rainfall per year.

Demographics

Land use in the Upper Chehalis



Land Base (in acres)

Federal	608	.1%
State	159,769	19.3%
Local	24	<.1%
Tribal	4,307	.5%
Private	662,807	80.1%

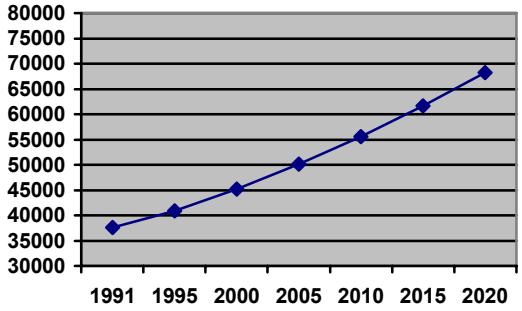
Principal Economic Activity (as total wages)

Agriculture/Forestry	4%
Manufacturing	18%
Retail Trade	23%
Services	18%
Government	19%

Population

There are approximately 45,830 people living in the Upper Chehalis Basin. The primary population centers are Centralia, Chehalis, and Tenino. The majority of people live in unincorporated areas.

Projected population trends



Counties

Lewis (60%) Thurston (24%)
Grays Harbor (11%) Pacific (4%)
Cowlitz (1%)

Special purpose districts

Conservation Districts: Lewis County; Thurston; Grays Harbor; Pacific

Principal Cities

Centralia	Chehalis
Tenino	Napavine
Pe Ell	Bucoda

Reservation Lands

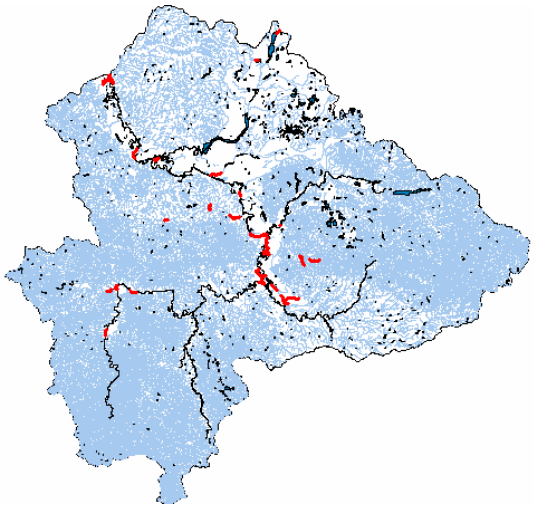
Chehalis Confederated Tribes

General Landscape

Low, rolling hills, terraces, and floodplains in the lower basin, U-shaped glaciated valleys in the east. Typical soils are deep silt loam to gravelly clay loam, sandy loam, and cobbly loam. Mean temperature ranges from 31/41° (winter) to 47/78° (summer).

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Berwick Creek, Chehalis River, Demsey Creek, Dillenbaugh Creek, Elk Creek, Lincoln Creek, Newaukum River, Salzer Creek, Scatter Creek and Skookumchuck River

High Temperature in Black River, Chehalis River, Dillenbaugh Creek, Lincoln Creek, Newaukum River, Salzer Creek, Scatter Creek and Skookumchuck River

Dissolved Oxygen in Demsey Creek

pH in Scatter Creek and Skookumchuck River

Nutrients in Black Lake

PCBs in Chehalis River

Total Maximum Daily Loads

3 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected > 10 mg/L
Pesticides – Have been detected in public wells

Sole Source Aquifer

None

Water Quantity

Flows set inadequate; need to be increased

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

Salmonid Stock Status

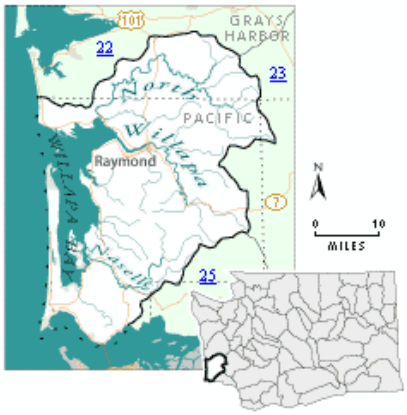
Impaired

3. Water Quality Programs

1. TMDLs for Chehalis River
2. TMDLs for Black River
3. TMDL for Lincoln Creek
4. TMDL for Scatter Creek
5. TMDL for Dillenbaugh Creek
6. TMDL for Skookumchuck Creek
7. TMDL for Salzar Creek
8. TMDL for Newaukum River
9. Chehalis River Basin Fishery Resources: Status, Trends, and Restoration Goals. 1992 USFWS
10. Animal Waste Management, Lewis CD
11. On-site Sewage Technical Assistance, Lewis County Health
12. Chehalis TMDL Program, Thurston CD & Lewis CD
13. Farm Planning Program, Thurston CD
14. Water Quality Education Program, Thurston CD
15. Implementation Program, Thurston CD
16. Dairy Nutrient Management Program, Grays Harbor CD
17. Grays Harbor Water Quality Program, Grays Harbor CD
18. Conservation Reserve Enhancement Program (CREP), Grays Harbor CD/Thurston CD
19. Dairy Waste Management Program, Lewis CD

20. Conservation Reserve Enhancement Program (CREP), Lewis CD
21. Lewis County Poultry Grant Program, Lewis CD
22. TMDL Alliance Program, Lewis CD
23. Drinking Water Quality Program, Lewis County Health
24. Septic O&M Program, Thurston County Health
25. Ambient Monitoring Program, Thurston County Health
26. North County Groundwater Program, Thurston County Health
27. Business Pollution Prevention Program, Thurston County Health
28. Thurston County Poultry Program, Thurston CD

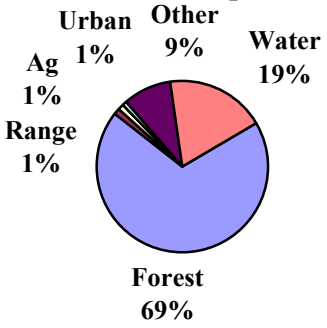
Willapa Basin - WRIA #24



WRIA #24 encompasses nearly 734,106 acres. Except for a small portion of the uplands, this watershed is part of the Coast Range ecoregion. Average annual rainfall is 84 inches per year.

Demographics

Land use in Willapa Basin



Land Base (in acres)

Federal	5,151	.7%
State	71,431	9.7%
Local	41	<.1%
Tribal	341	.1%
Private	657,142	89.5%

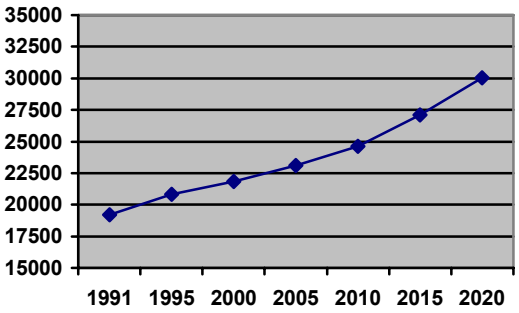
Principal Economic Activity (as total wages)

Forestry/Fishing	7%
Manufacturing	20%
Retail Trade	20%
Services	18%
Government	26%
Other	9%

Population

There are approximately 21,800 people living in the Willapa Basin. The primary population centers are Raymond and South Bend. The majority of people live in unincorporated areas.

Projected population trends



Counties

Pacific (83%) Grays Harbor (16%)
Lewis (<1%) Wahkiakum (<1%)

Special purpose districts

Conservation Districts: Pacific; Grays Harbor

Principal Cities

Raymond South Bend
Long Beach Ilwaco

Reservation Lands

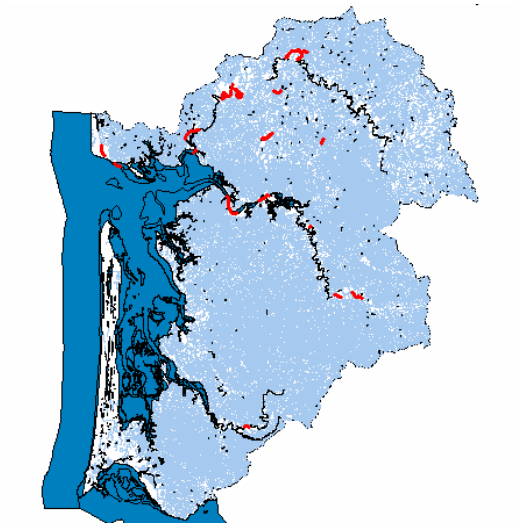
Shoalwater Bay Tribe

General Landscape

Coastal headlands and upland terraces with steeply sloping mountains. Medium to high gradient streams that have stable summer flow. Typical soils are deep silty clay loam to gravelly loam. Potential natural vegetation is sitka spruce, western hemlock, western red cedar, and some Douglas fir. Mean temperature ranges from 30/50° (winter) to 50/76° (summer).

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) listed Problem Areas

Fecal Coliform in Columbia River, Grayland Ditch, North River, Willapa Bay, and Willapa River

High Temperature in Elkhorn Creek, Fork Creek, Joe Creek, Little North River, Naselle River, North River, Upper Salmon Creek, Smith Creek, Unnamed Creek (tributary to the North River), and Willapa River

Dissolved Oxygen in Grayland Ditch and Willapa River

Pesticides in Pacific County Drainage Ditch NO. 1

PCBs in Columbia River

Total Dissolved Gas in Columbia River

Total Maximum Daily Loads

6 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels not detected above 5 mg/L
Pesticides – Have been detected in public wells

Sole Source Aquifer

None

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

Areas threatened and impaired

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

Salmonid Stock Status

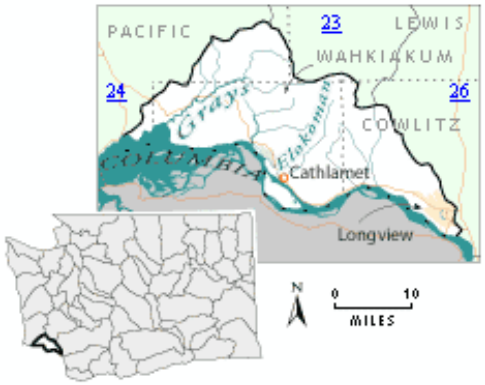
Healthy

3. Water Quality Programs

1. TMDL for Willapa River
2. Little North River Watershed Analysis, 1995 Weyerhaeuser
3. Willapa River TMDL in progress
4. Willapa Bay Water Resources Coordinating Council information clearinghouse, Pacific County
5. North Pacific County Infrastructure Action Team-economic development and water quality concerns
6. Dairy Farm Plans and Manure Management Programs, Pacific CD
7. Cranberry Program, Pacific CD
8. Kelp Canopy Monitoring, WDNR
9. State ShoreZone Inventory, DNR/Coastal & Ocean Resources
10. Digital Coastal Atlas, DOE
11. Estuarine Health Indicator Project, PSWQAT
12. Biotoxins Monitoring Program, DOH
13. Commercial Shellfish Growing Area Classification Program, DOH
14. Recreational Shellfish Program, DOH
15. Long Beach Groundwater Survey, Pacific County Health

16. Wells Permitting Program, Pacific County Health
17. Skating Lake Project, DOT

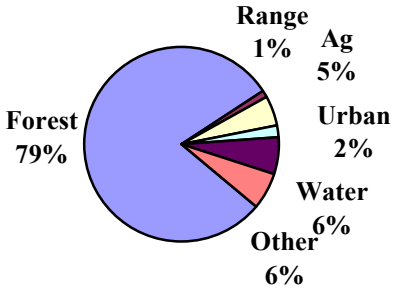
Grays-Elochoman Basin - WRIA #25



WRIA #25 encompasses nearly 322,582 acres. Located along the Lower Columbia River, the majority of this watershed is in the Coast Range ecoregion. Average annual rainfall is 80 inches per year.

Demographics

Land use in Grays/Elochoman



Land Base (in acres)

Federal	2,483	.7%
State	51,958	16.2%
Local	-0-	-0-
Tribal	-0-	-0-
Private	268,141	83.1%

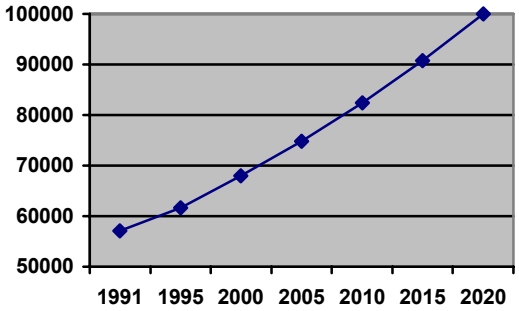
Principal Economic Activity (as total wages)

Agriculture/Forestry	7%
Manufacturing	23%
Retail Trade	16%
Services	14%
Government	32%
Other	8%

Population

There are approximately 66,659 people living in the Grays-Elochoman Basin. The primary population center is Longview. The majority of people live in unincorporated areas.

Projected population trends



Counties

Wahkiakum (56%) Cowlitz (26%)
Pacific (17%) Lewis (1%)

Special purpose districts

Conservation Districts: Wahkiakum; Cowlitz; Pacific

Principal Cities

Longview Cathlamet
Altoona

Reservation Lands

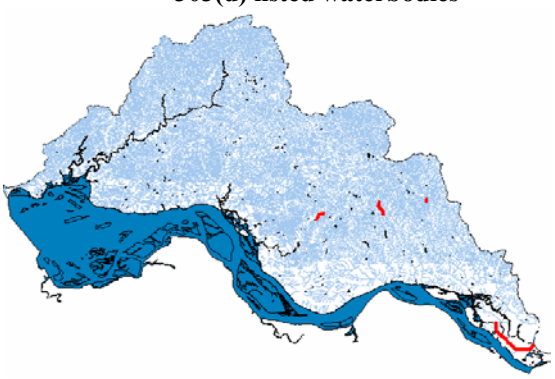
None

General Landscape

This basin contains coastal headlands and upland terraces and is characterized by low, rolling hills and undulating glacial drift plains. Soils are typically deep silt loam to gravelly sandy loam. Potential natural vegetation is western hemlock, western red cedar, and Douglas fir. Mean temperature ranges from 31/46° (winter) to 50/76° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Columbia River and Longview Ditches

High Temperature in Abernathy Creek, Columbia River, Elochoman River, Germany Creek, and Grays River

Dissolved Oxygen in Columbia River and Longview Ditches

Metals in Longview Ditches

Pesticides in Columbia River and Sacajawea Lake

PCBs in Columbia River and Sacajawea Lake

Total Dissolved Gas in Columbia River

Turbidity in Longview Ditches

Total Maximum Daily Loads

7 TMDLs required form the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels not detected above 5 mg/L
Pesticides – Have not been detected in public wells

Sole Source Aquifer

None

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

No significant use of surface water sources

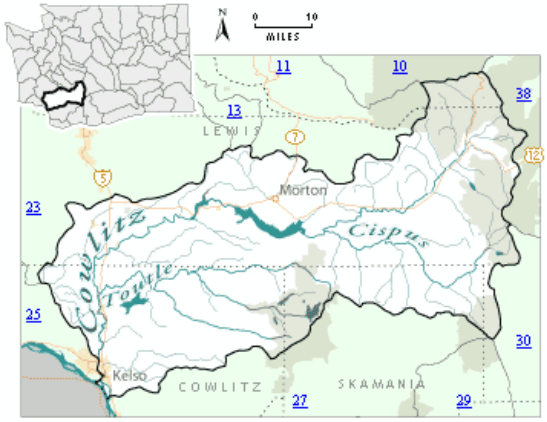
Salmonid Stock Status

Threatened

3. Water Quality Programs

1. TMDL for Longview Ditches
2. Conservation Reserve Enhancement Program (CREP), Wahkiakum CD
3. Dairy Waste Nutrient Management Program, Wahkiakum CD
4. Water Quality Implementation Program, Wahkiakum CD
5. Continuous CRP, Wahkiakum CD
6. BMP Watershed Planning Program, Wahkiakum CD
7. Watershed BMP Design & Implementation Program, Wahkiakum CD
8. Onsite Sewage Program, Wahkaikum County Health

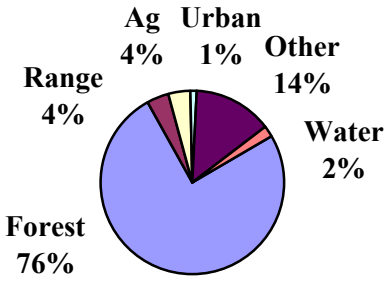
Cowlitz Basin - WRIA #26



WRIA #26 encompasses nearly 1,597,566 acres. The upper watershed is part of the Cascade ecoregion, The lower portion is in the Puget Lowlands. Average annual rainfall is 72 inches per year.

Demographics

Land use in the Cowlitz Basin



Land Base (in acres)

Federal	685,932	42.8%
State	81,489	5.2%
Local	22	<.01%
Tribal	869	.1%
Private	829,254	51.9%

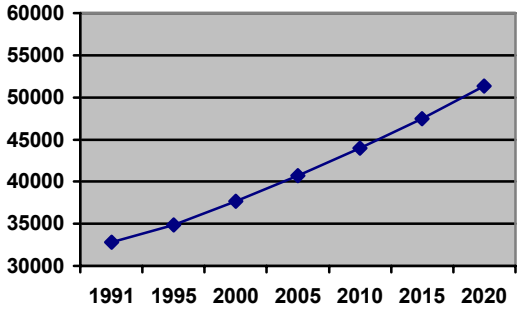
Principal Economic Activity (as total wages)

Manufacturing	27%
Retail Trade	19%
Services	20%
Government	14%
Construction	7%
Other	13%

Population

There are approximately 37,882 people living in the Cowlitz Basin. The primary population centers are Kelso and Castle Rock. The majority of people live in unincorporated areas.

Projected population trends



Counties

Lewis (57%)	Cowlitz (27%)
Skamania (13%)	Pierce (2%)
Yakima (1%)	

Special purpose districts

Conservation Districts: Lewis County; Cowlitz; Underwood

Principal Cities

Kelso	Castle Rock
Morton	Winlock
Toledo	Mossyrock

Reservation Lands

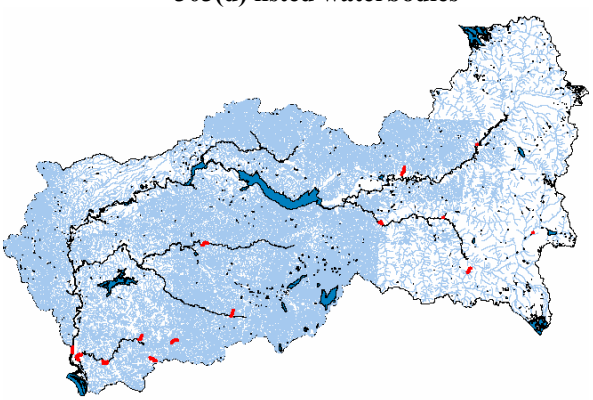
None

General Landscape

Glaciated valleys, ranging from U-shaped to steep, dissected mountains. Streams are high to medium gradient. Soils are typically deep clay loam, silt loam, gravelly loam, and cobbly loam. Potential natural vegetation is western hemlock, western red cedar, Pacific silver fir, some Douglas fir and some noble fir. Mean temperature ranges from 26/41° (winter) to 44/78° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

High Temperature in Baird Creek, Cispus River, Coweeman River, East Canyon Creek, Goble Creek, Green River, Herrington Creek, Iron Creek, Mulholland Creek, Silver Creek, and Willamete Creek

Pesticides in Cowlitz River

Organics in Columbia River

Total Maximum Daily Load

4 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected above 10mg/L

Pesticides – Have been detected in public wells

Sole Source Aquifer

None

Water Quantity

Flows not set; growth pressure

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

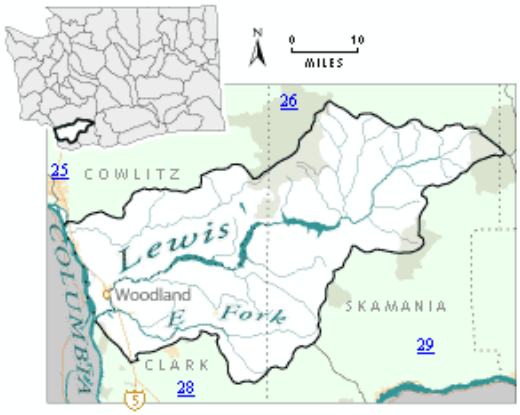
Salmonid Stock Status

Impaired

3. Water Quality Programs

1. US Forest Service Northwest Forest Plan
2. Silver Lake Phase II Restoration
3. Onsite Sewage Technical Assistance, Lewis/Wahkaikum/Pierce/Southwest County Health
4. Resource Protection Program, Southwest WA Health
5. Recreational Bathing Beaches Program, Southwest WA Health
6. Sewage O&M Program, Southwest WA Health
7. Dairy Waste Management Program, Lewis CD
8. Conservation Reserve Enhancement Program (CREP), Lewis CD
9. Lewis County Poultry Grant Program, Lewis CD
10. TMDL Alliance Program, Lewis CD
11. Conservation Reserve Enhancement Program (CREP), Wahkiakum CD
12. Dairy Waste Nutrient Management Program, Wahkiakum CD
13. Water Quality Implementation Program, Wahkiakum CD
14. Continuous CRP, Wahkiakum CD
15. BMP Watershed Planning Program, Wahkiakum CD
16. Watershed BMP Design & Implementation Program, Wahkiakum CD
17. Drinking Water Quality Program, Lewis County Health
18. Household Hazardous Waste Education Program, Tacoma/Pierce County Health

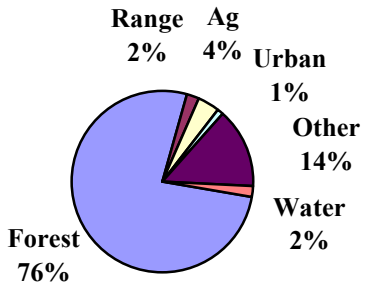
Lewis Basin - WRIA #27



WRIA #27 encompasses nearly 837,431 acres. The Cascades, Puget Lowlands, and Willamete Valley make up the ecoregions for this watershed. Average rainfall is about 90 inches per year.

Demographics

Land use in the Lewis Basin



Land Base (in acres)

Federal	366,474	43.8%
State	89,325	10.6%
Local	686	.1%
Tribal	-0-	-0-
Private	380,946	45.5%

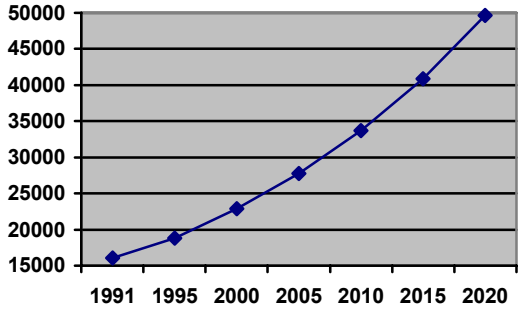
Principal Economic Activity (as total wages)

Manufacturing	20%
Retail Trade	20%
Services	22%
Government	17%
Other	11%

Population

There are approximately 22,831 people living in the Lewis Basin. The primary population centers are Woodland and Ridgefield. The majority of people live in unincorporated areas.

Projected population trends



Counties

Skamania (49%) Cowlitz (26%)
Clark (25%)

Special purpose districts

Conservation Districts: Cowlitz; Clark County; Underwood

Principal Cities

Woodland Ridgefield
Kalama Yacolt

Reservation Lands

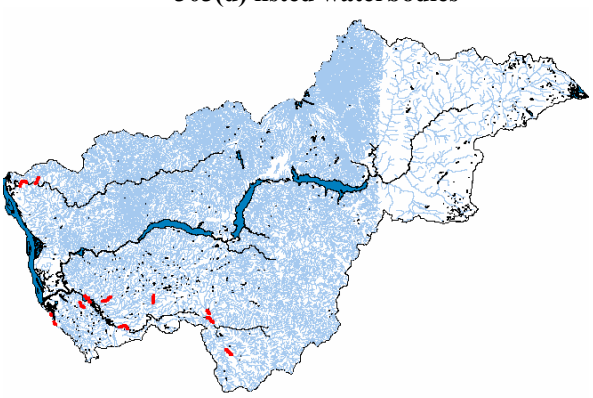
None

General Landscape

Upper basin has U-shaped glaciated valleys, lower basin has floodplains with low gradient meandering streams. Typical soil ranges from deep, silty clay loam to gravelly loam, and cobbly loam. Potential natural vegetation includes prairies, Oregon white oak, western hemlock, western red cedar, and Douglas fir. Mean temperature ranges between 31/45° (winter) to 47/80° (summer).

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) listed Problem Areas

Fecal Coliform in Lewis River, Lockwood Creek, McCormick Creek, Rock Creek, and Yacolt Creek

High Temperature in Columbia River, Hatchery Creek, Kalama River, Lewis River, and McCormick Creek

Pesticides in Columbia River

PCBs in Columbia River

Total Dissolved Gas in Columbia River

Total Maximum Daily Loads

6 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected above 5 mg/L
Pesticides – Have not been detected in public wells

Sole Source Aquifer

None

Water Quantity

Flows not set; growth pressure

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

Salmonid Stock Status

Threatened

3. Water Quality Programs

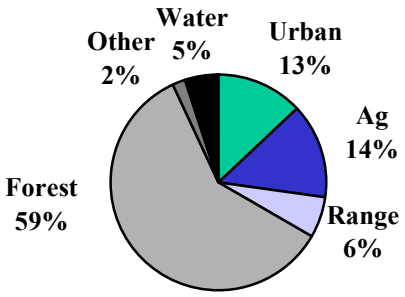
1. US Forest Service Northwest Forest Plan
2. Watershed Action Plan for East Fork Lewis River *(pending extension into 2002), Clark County Public Works
3. Dry Well Management Program *(pending extention into 2002), Clark County Public Works
4. NPDES Phase I Stormwater Management Program, Clark County Public Works
5. IAC/SRFB Cedar Creek Grant, Clark County CD
6. DOE Salmon Creek Grant, Clark County CD
7. Conservation Reserve Enhancement Program (CREP), Clark County CD
8. Dairy Waste Grant, Clark County CD
9. Resource Protection Program, Southwest WA Health
10. Recreational Bathing Beaches Program, Southwest WA Health
11. Sewage O&M Program, Southwest WA Health

Salmon-Washougal Basin - WRIA #28

WRIA #28 contains nearly 316,365 acres. Located along the lower Columbia River, the Willamette Valley and Cascade make up the ecoregions for this watershed. Rainfall averages 63 inches per year.

Demographics

Land Use in Salmon-Washougal Basin



Land Base (in acres)

Federal	12,594	4.0%
State	57,998	18.3%
Local	1,182	.4%
Tribal	-0-	-0-
Private	244,591	77.3%

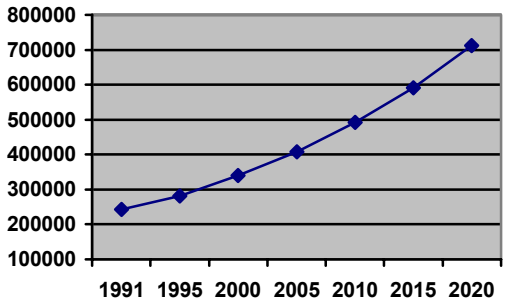
Principal Economic Activity (as total wages)

Manufacturing	20%
Retail Trade	20%
Services	22%
Government	17%
Other	11%

Population

There are approximately 302,278 people living in the Salmon-Washougal Basin. The primary population centers in the basin are Vancouver, Washougal, and Camas. The majority of people live in unincorporated areas.

Project population trends



Counties

Clark (67%)
Skamania (33%)

Special purpose districts

Conservation Districts: Clark County; Underwood

Principal Cities

Vancouver	Camas
Washougal	Battle Ground
Ridgefield	North Bonneville

Reservation Lands

None

General Landscape

Upper basin has U-shaped glaciated valleys, lower basin has floodplains with low gradient meandering streams. Typical soil ranges from deep, silty clay loam to gravelly loam, and cobbly loam. Potential natural vegetation includes prairies, Oregon white oak, western hemlock, western red cedar, and Douglas fir. Mean temperature ranges between 31/45° (winter) to 47/80° (summer).

SurfaceWater Quality

303(d) listed waterbodies

1. 303(d) Listed Problem Areas

Fecal Coliform in Burnt Bridge Creek, Columbia River, Curtin Creek, Fifth Plain Creek, Gibbons Creek, Lacamas Creek, Lake River, Mill Creek, Salmon Creek, and Weaver Creek

High Temperature in Burnt Bridge Creek, China Ditch, China Lateral, Columbia River, Fifth Plain Creek, Lacamas Creek, Lake River, Matney Creek, Mill Ditch, Salmon Creek, and Shanghai Creek

Dissolved Oxygen in Burnt Bridge Creek, China Ditch, China Lateral, Cougar Canyon Creek, Cowpie Creek, Dwyer Creek, Fifth Plain Creek, Lacamas Creek, Matney Creek, Mill Ditch, and Shanghai Creek

pH in Burnt Bridge Creek, Dwyer Creek, Fifth Plain Creek, Lacamas Creek, Matney Creek, Mill Ditch, and Shanghai Creek

Sediment Bioassay in Columbia River and Lake River

Total Dissolved Gas in Columbia River

Turbidity in Salmon Creek

Arsenic in Columbia River

Total Maximum Daily Loads

7 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected above 5 mg/L
Pesticides – Have not been detected in public wells

Sole Source Aquifer

None

Water Quantity

Flows not set; growth pressure

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

No significant use of surface water sources

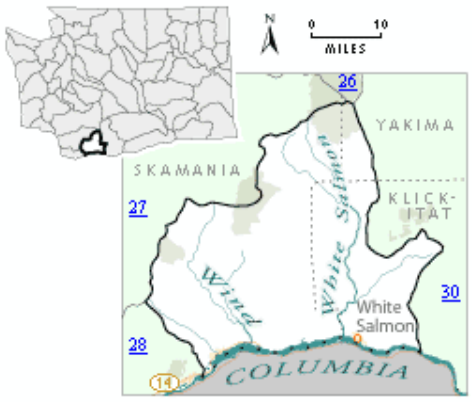
Salmonid Stock Status

Impaired

3. Water Quality Programs

1. TMDL for Salmon Creek
2. TMDL for Weaver Creek
3. TMDL for Gibbons Creek
4. NPDES Phase I Stormwater Management Program, Clark County Public Works
5. Dry Well Management Program *(pending extension into 2002), Clark County Public Works
6. Dairy Waste Grant, Clark County CD
7. Resource Protection Program, Southwest WA Health
8. Recreational Bathing Beaches Program, Southwest WA Health
9. Sewage O&M Program, Southwest WA Health

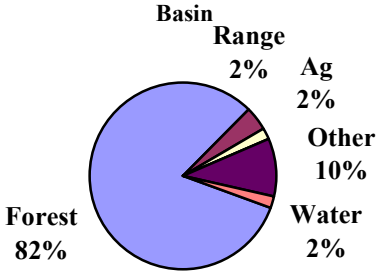
Wind-White Salmon Basin - WRIA 29



WRIA #29 contains nearly 576,745 acres. This watershed is part of the Cascade and Eastern Cascade Slopes ecoregions. Rainfall averages 70 inches per year.

Demographics

Land use in the Wind/White Salmon Basin



Land Base

Federal	325,971	56.5%
State	74,936	13.0%
Local	-0-	-0-
Tribal	45	<.01%
Private	175,793	30.5%

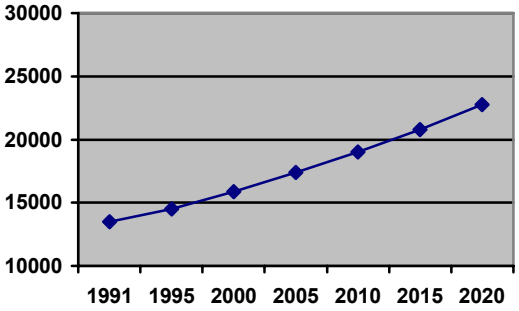
Principal Economic Activity (as total wages)

Agriculture/Forestry	2%
Manufacturing	14%
Retail Trade	10%
Services	26%
Government	42%
Other	6%

Population

There are approximately 16,528 people living in the Wind-White Salmon Basin. The primary population center is White Salmon. The majority of people live in unincorporated areas.

Projected population trends



Counties

Skamania (65%) Klickitat (31%)
Yakima (4%)

Special purpose districts

Conservation Districts: Underwood; Central Klickitat; South Yakima
Irrigation Districts: White Salmon; Bingen

Principal Cities

White Salmon	Stevenson
Carson	Home Valley
Hood	Trout Lake

Reservation Lands

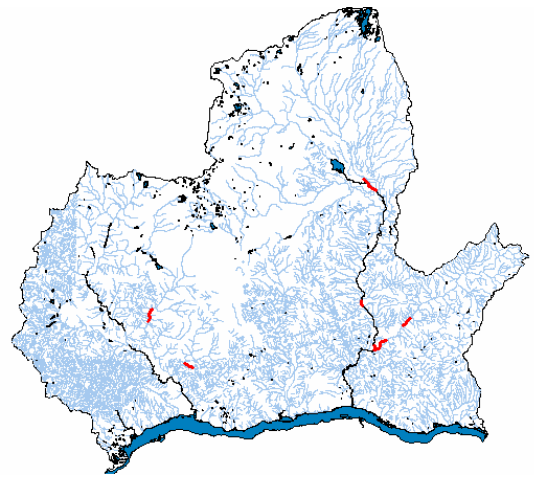
None

General Landscape

U-shaped glaciated valleys and steep dissected mountains with medium gradient streams. Eastern slope is low mountainous foothills. Typical soils include deep clay and silty clay loam, gravelly silt loam, and cobbly loam. Potential natural vegetation includes western hemlock, western red cedar, Pacific silver fir, Douglas fir, noble fir, and ponderosa pine in the east. Mean temperature ranges from 26/41° (winter) to 53/82° (summer).

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Rattlesnake Creek, Trout Lake Creek, and White Salmon River

High Temperature in Bear Creek, Eightmile Creek, Indian Creek, and Rattlesnake Creek

Total Maximum Daily Loads

2 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected above 10 mg/L
Pesticides - Have not been detected in public wells

Sole Source Aquifer

None

Water Quantity

Flows not set; limited growth pressure

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

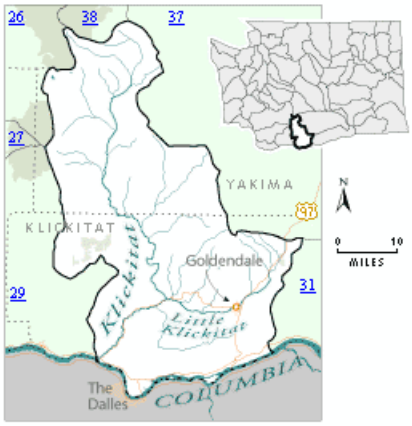
Salmonid Stock Status

Impaired

3. Water Quality Programs

1. TMDL for Wind River
2. White Salmon Watershed Enhancement Project, Underwood CD
3. Wind River Watershed Restoration Project, Underwood CD
4. Jewett Creek Watershed Project, Underwood CD
5. Dairy Waste System Technical & Financial Program, Underwood CD
6. Forestland Management Technical Assistance Program, Underwood CD
7. CREP, Underwood CD
8. WRIA 29 Watershed Planning Program, Underwood CD
9. Watershed Conservation Warehouse Program, Underwood CD
10. US Forest Service Northwest Forest Plan
11. Resource Protection Program, Southwest WA Health
12. Recreational Bathing Beaches Program, Southwest WA Health
13. Sewage O&M Program, Southwest WA Health
14. WRIA 29 Level 1 Assessment/Planning, Skamania County Planning
15. Stabler Water Quality & Quantity Study/Planning, Skamania County Planning

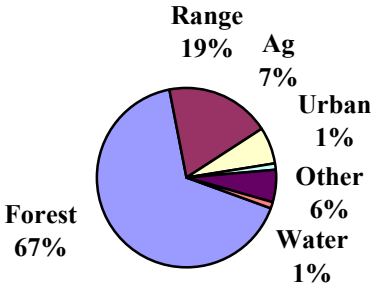
Klickitat Basin - WRIA #30



WRIA #30 encompasses about 918,850 acres. The Eastern Cascade Slopes and the Columbia Basin make up the watershed's ecoregions. Average rainfall is 31 inches.

Demographics

Land use in the Klickitat Basin



Land Base (in acres)

Federal	10,856	1.2%
State	81,749	8.9%
Local	-0-	-0-
Tribal	364,602	39.7%
Private	461,643	50.2%

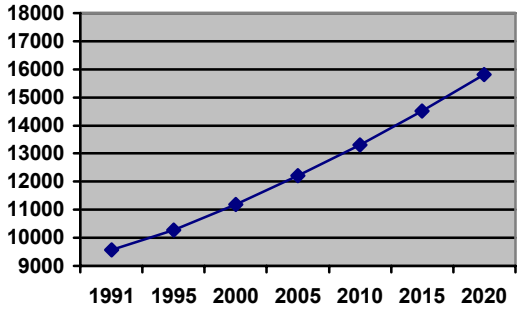
Principal Economic Activity (as total wages)

Agriculture/Forestry	9%
Manufacturing	24%
Retail Trade	10%
Services	10%
Government	27%
Other	20%

Population

There are approximately 11,267 people living in the Klickitat Basin. The primary population centers are Goldendale and Klickitat. The majority of people live in unincorporated areas.

Projected population trends



Counties

Klickitat (58%) Yakima (42%)

Special purpose districts

Conservation Districts: Central Klickitat; Eastern Klickitat; South Yakima; Underwood
Irrigation Districts: North Dalles

Principal Cities

Goldendale	Klickitat
Lyle	Dallesport
Maryhill	Centerville

Reservation Lands

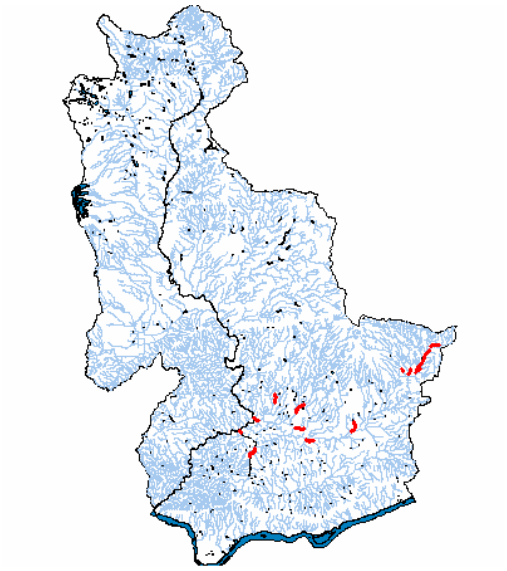
Confederated Tribes and Bands of the Yakama Indian Nation

General Landscape

High unglaciated plateaus, buttes, and canyons to low mountains and foothills. Permanent and intermittent streams that are high to medium gradient. Typical soils include moderately deep stony loam to very cobbly loam. Potential natural vegetation is ponderosa pine, Oregon white oak, bitterbrush, Douglas fir, and grasslands. Mean temperature ranges from 18/40° (winter) to 52/82° (summer).

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

High Temperature in Butler Creek, Columbia River, Little Klickitat River, and Swale Creek

Low Instream Flow in Blockhouse Creek, Bloodgood Creek, Bowman Creek, Little Klickitat River, Mill Creek, and Swale Creek

Total Dissolved Gas in Columbia River

Total Maximum Daily Loads

2 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected above 5 mg/L
Pesticides – Have been detected in public wells

Sole Source Aquifer

None

Water Quantity

Flows not set; limited growth pressure

Air Quality
Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health
Commercial Shellfish Growing Areas

None

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

Salmonid Stock Status

Impaired

3. Water Quality Programs

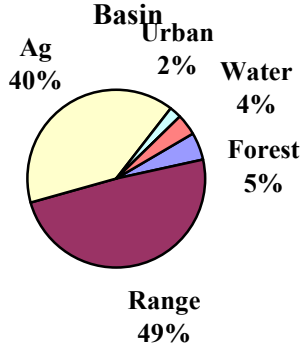
1. TMDLs for Little Klickitat River
2. US Forest Service Northwest Forest Plan
3. Watershed Management Plan, Goldendale
4. Watershed Protection Improvements, Goldendale
5. Dairy Nutrient Management Program, South Yakima CD
6. White Salmon Watershed Enhancement Project, Underwood CD
7. Wind River Watershed Restoration Project, Underwood CD
8. Jewett Creek Watershed Project, Underwood CD
9. Dairy Waste System Technical & Financial Program, Underwood CD
10. Forestland Management Technical Assistance Program, Underwood CD
11. CREP, Underwood CD
16. WRIA 29 Watershed Planning Program, Underwood CD
17. Watershed Conservation Warehouse Program, Underwood CD

Rock-Glade Basin - WRIA #31

WRIA #31 is part of the Columbia Basin and Eastern Cascade Slopes ecological region. The watershed encompasses about 1,057,998 acres. Yearly rainfall averages 8 inches.

Demographics

Land use in the Rock/Glade Basin



Land Base (in acres)

Federal	23,316	2.2%
State	59,515	5.6%
Local	540	.1%
Tribal	421	<.1%
Private	974,206	92.1%

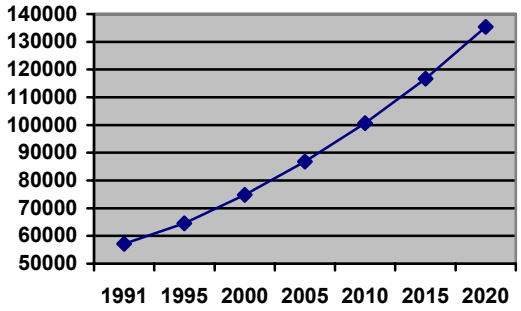
Principal Economic Activity (as total wages)

Agriculture	10%
Retail Trade	17%
Services	33%
Government	16%
Other	24%

Population

There are approximately 74,521 people living in the Rock-Glade Basin. The primary population centers are Kennewick and Plymouth. The majority of people live in unincorporated areas.

Projected population trends



Counties

Benton (50%) Klickitat (44%)
Yakima (6%)

Special purpose districts

Conservation Districts: Benton; Central Klickitat; Eastern Klickitat; South Yakima
Irrigation Districts: Columbia Water and Power, Kennewick

Principal Cities

Kennewick	Plymouth
Paterson	Roosevelt
Goodnoe Hills	Bickleton

Reservation Lands

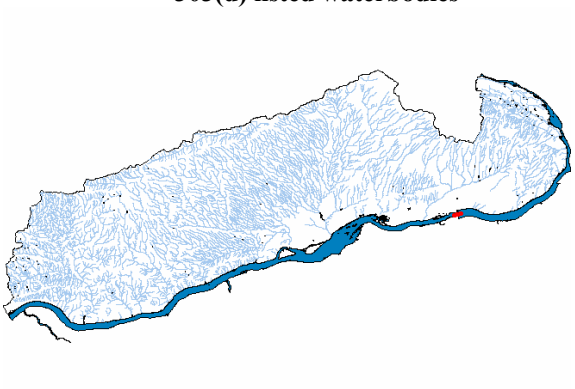
None

General Landscape

This landscape is composed of layer upon layer of basalt, and remnants of the Pleistocene lake basins. The typical soils are deep gravelly loam to silty loam. Potential natural vegetation is big sagebrush, bitterbrush, bluebunch wheatgrass, and Idaho fescue.

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

High Temperature in Columbia River

Sediment Bioassay in Columbia River

Total Dissolved Gas in Columbia River

Arsenic in Columbia River

Total Maximum Daily Loads
2 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality
Nitrates – Levels detected above 10 mg/L
Pesticides – Have been detected in public wells

Sole Source Aquifer
None

Water Quantity
No Concerns

Air Quality
(Windblown dust from bare, dry agricultural land, especially fallow fields)
Approximately 61,143 fallow acres yearly

Public Health
Commercial Shellfish Growing Areas
None

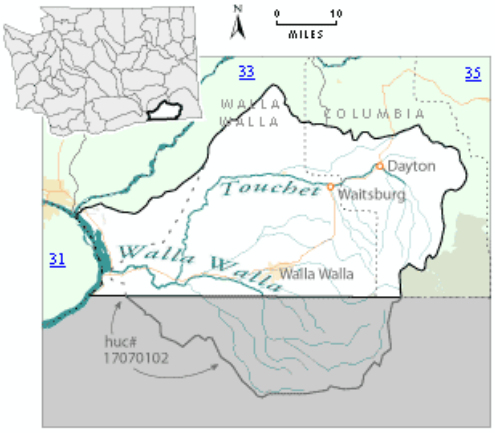
Domestic Water Supply
Within this WRIA are large community water systems that significantly utilize surface water sources.

Salmonid Stock Status
Healthy

3. Water Quality Programs

1. TMDLs for Columbia River
2. Timber, Fish, Wildlife Project
3. Develop Best Management Practices, Benton CD
4. Coordinated Resource Management Plan, Central Klickitat CD
5. Conservation Reserve Enhancement Program (CREP), Central Klickitat CD
6. Continuous Conservation Reserve Program, Central Klickitat CD
7. Temperature TMDL on Little Klickitat River, Central Klickitat CD
8. Water Quality Implementation Plan – Direct Seeding, Central Klickitat CD
9. Forestry Incentive Program, Central Klickitat CD
10. Nitrate Education Program, Benton-Franklin County Health
11. Critical Areas Ordinance, Benton County Planning

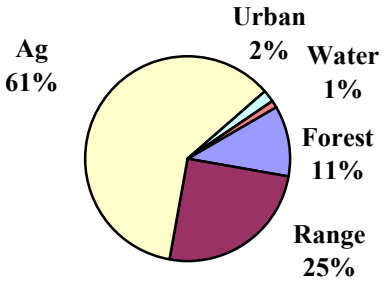
Walla Walla Basin - WRIA #32



WRIA #32 is contained within the Columbia Basin and Blue Mountains ecological regions. This watershed is about 908,812 acres. Average rainfall ranges between 5" in the lower elevations to 40" in the Blue Mountains.

Demographics

Land use in the Walla Walla Basin



Land Base (in acres)

Federal	47,442	5.2%
State	19,843	2.2%
Local	674	.1%
Tribal	-0-	-0-
Private	840,853	92.5%

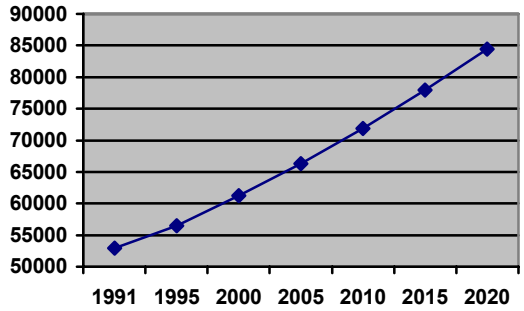
Principal Economic Activity (as total wages)

Manufacturing	25%
Government	34%
Retail Trade	10%
Agriculture	8%
Other	23%

Population

There are approximately 61,455 people living in the Walla Walla Basin. The primary population centers are Walla Walla and Dayton. The majority of people live in unincorporated areas.

Projected population trends



Counties

Walla Walla (72%)
Columbia (28%)

Special purpose districts

Conservation Districts: Walla Walla County; Columbia
Irrigation Districts: Hearn; West End; Artesa; Blalock; Blalock Orchard; Consolidated; East Side; Gardena Farms; Green Tank; Hydro; Lowden; Mud Creek; Orchard; Touchet Valley; Walla Wall Water and Power; West Side

Principal Cities

Walla Walla	College Place
Dayton	Waitsburg

Reservation Lands

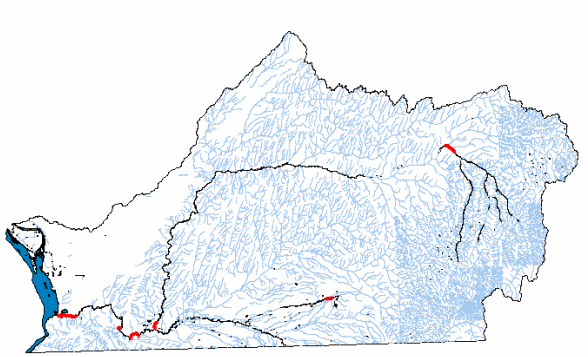
None

General Landscape

The Walla Walla basin is primarily rolling loessal duneland formations. Some of the formations were reworked by flooding when the floodwaters of Lake Missoula backed up at Wallulla Gap. Soils are typically deep loess on hills and foothills. Potential natural vegetation is big sagebrush, bluebunch wheatgrass, Idaho fescue, rabbit brush, and bitterbrush.

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Touchet River and Walla Walla River

High Temperature in Mill Creek, Touchet River, and Walla Walla River

pH in Mill Creek and Walla Walla River

Pesticides in Walla Walla River

Low Instream Flow in Mill Creek and Walla Walla River

PCBs in Walla Walla River

Total Maximum Daily Loads

0 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected above 10 mg/L
Pesticides – Have not been detected in public wells

Sole Source Aquifer

None

Water Quantity

Over appropriated; medium growth

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

Approximately 93,070 fallow acres yearly

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

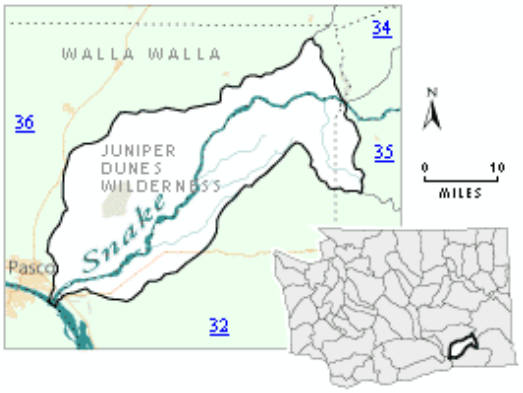
Salmonid Stock Status

Healthy

3. Water Quality Programs

1. TMDLs for Mill Creek
2. TMDL for Walla Walla River
3. TMDL for Touchet River
4. Touchet River Watershed Analysis, DNR
5. 2514 Watershed Planning Process, Walla Walla County and Columbia CD
6. US Forest Service Northwest Forest Plan
7. Walla Walla Wellhead and Initial Aquifer Characterization Study, Walla Walla County
8. Sewage Program, Columbia Health District
9. Conservation Reserve Enhancement Program (CREP), Walla Walla/Columbia CD
10. Conservation Tillage Program, Walla Walla CD
11. Insteam Flow Enhancement Program, Walla Walla CD
12. Dept. of Corrections Dairy Program, NRCS
13. Direct Seeding Program, Columbia CD
14. Upland BMP Program, Columbia CD
15. Onsite Sewage Program, Walla Walla County Health
16. Water Quality Program, Walla Walla

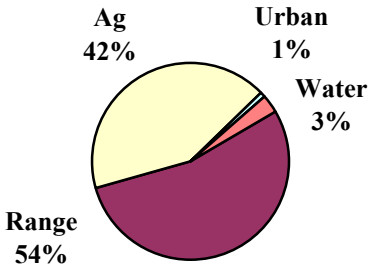
Lower Snake Basin - WRIA #33



WRIA #33 is located within the Columbia Basin ecosystem. This 461,472-acre watershed receives about 11 inches per year of rainfall.

Demographics

Land use in the Lower Snake Basin



Land Base (in acres)

Federal	26,712	5.8%
State	20,642	4.5%
Local	134	<.1%
Tribal	-0-	-0-
Private	413,984	89.7%

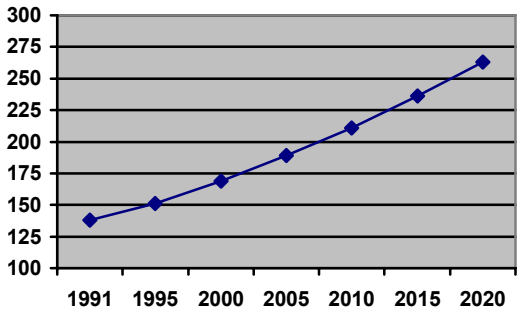
Principal Economic Activity (as total wages)

Agriculture	25%
Retail Trade	13%
Services	18%
Government	18%
Manufacturing	8%
Other	18%

Population

There are approximately 174 people living in the Lower Snake Basin. The majority of people live in unincorporated areas.

Projected population trends



Counties

Franklin (57%) Walla Walla (39%)
Columbia (4%)

Special purpose districts

Conservation Districts: Franklin; Walla Walla County; Columbia
Irrigation Districts: Burbank

Principal Cities

Page
Snake River
Haas
Burbank
Burbank Heights

Reservation Lands

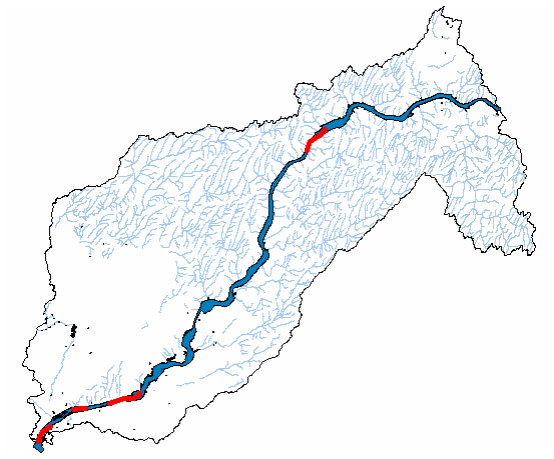
None

General Landscape

The scablands and loess islands were formed as immense floods periodically broke through the ice dams blocking glacial Lake Missoula during the Pleistocene. Soils are typically deep loess on hills and foothills. Potential natural vegetation is big sagebrush, bluebunch wheatgrass, Idaho fescue, and bitterbrush.

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

High Temperature in Snake River

Dissolved Oxygen in Snake River

Total Dissolved Gas in Snake River

Total Maximum Daily Loads
1 TMDL required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality
Nitrate – Levels detected > 10 g/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer
None

Water Quantity
No Concerns

Air Quality
Windblown dust from bare, dry agricultural land, especially fallow fields)
Approximately 91,925 fallow acres yearly

Public Health

Commercial Shellfish Growing Areas
None

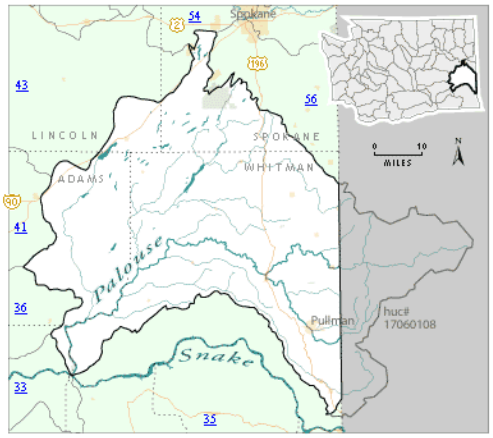
Domestic Water Supply
No significant use of surface water sources

Salmonid Stock Status
Healthy

3. Water Quality Programs

1. TMDLs for Snake River
2. Mid-Columbia Basin Ground Water Management Area, Franklin County
3. Columbia Basin Groundwater Management Area, Franklin CD/Benton-Franklin County Health
4. DOE Franklin County Watershed Education Program, Franklin CD
5. Increase Irrigation Efficiencies Program, Franklin CD
6. DOE Crop Remote Sensing Project, Franklin CD
7. Groundwater Nitrate Implementation Project, Franklin CD
8. Dairy Nutrient Management Project, Franklin CD
9. Nitrate Education Program, Benton-Franklin County Health
10. On-Site Sewage Program, Benton-Franklin/Walla Walla County Health

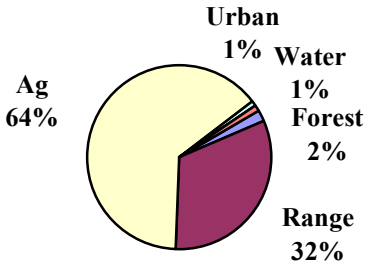
Palouse Basin - WRIA #34



WRIA #34 encompasses about 1,765,345 acres. Located in the heart of the Palouse, this watershed receives an average annual rainfall of 13 inches per year. It is part of the Columbia Basin ecoregion.

Demographics

Land use in the Palouse Basin



Land Base (in acres)

Federal	18,828	1.1%
State	68,769	3.9%
Local	-0-	-0-
Tribal	-0-	-0-
Private	1,677,748	95.0%

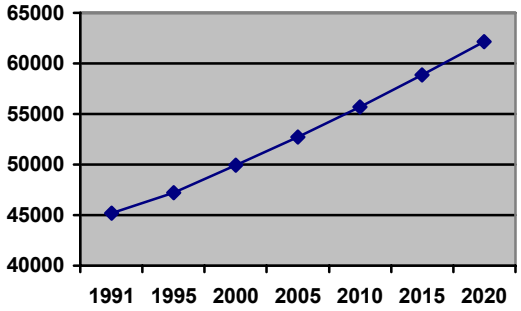
Principal Economic Activity (as total wages)

Agriculture/Forestry	4%
Retail Trade	17%
Services	12%
Government	50%
Other	18%

Population

There are approximately 49,238 people living in the Palouse Basin. The primary population centers are Pullman, Medical Lake, and Colfax. Nearly one half of the population live in unincorporated areas.

Projected population trends



Counties

Whitman (62%)	Adams (20%)
Spokane (13%)	Lincoln (4%)
Franklin (1%)	

Special purpose districts

Conservation Districts: Palouse-Rock Lake; Pine Creek; Palouse; Whitman; Adams; Spokane County; Lincoln County

Principal Cities

Pullman	Medical Lake
Colfax	Palouse
Rosalia	Garfield
St. John	Sprague

Reservation Lands

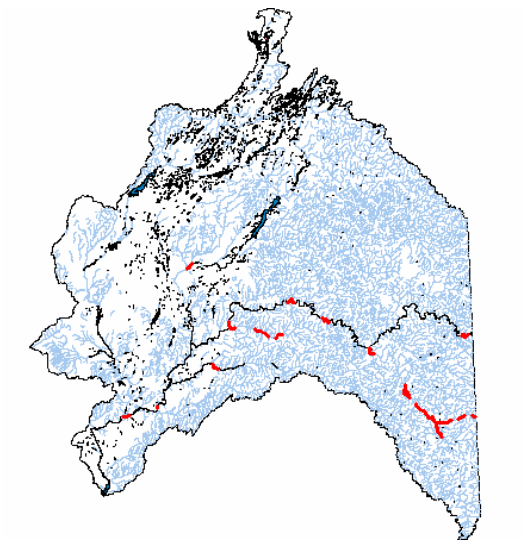
None

General Landscape

The Palouse Basin is characterized by dune-like ridges, deep loess soils, and low gradient intermittent, streams. Soils are high in organic matter and clay, and are highly productive. The potential natural vegetation is the fescue-snowberry plant association.

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Missouri Flat Creek, Palouse River, Paradise Creek, and Rebel Flat Creek

High Temperature in Palouse River, Paradise Creek, Pine Creek, Rock Creek, and Union Flat Creek

Dissolved Oxygen in Missouri Flat Creek, Palouse River, Paradise Creek, Pine Creek, and Rebel Flat Creek

pH in Palouse River, Pine Creek, and Rock Creek

Metals in Palouse River

Pesticides in Palouse River

Nutrients in Medical Lake and Paradise Creek

PCBs in Palouse River

Total Maximum Daily Loads

7 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected >10 mg/L
Pesticides – Have not been detected in public wells.

Sole Source Aquifer

None

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)
Approximately 54,467 fallow acres yearly

Public Health

Commercial Shellfish Growing Areas
None

Domestic Water Supply
No significant use of surface water sources

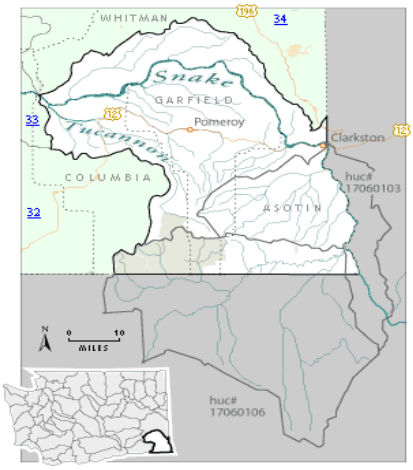
Salmonid Stock Status
Healthy

3. Water Quality Programs

1. TMDL for Palouse River, South Fork
2. TMDL for Snake River
3. Paradise Creek Watershed Plan, Palouse CD
4. Missouri Flat Creek Watershed Plan, Palouse CD
5. Information & Education Program, Whitman CD
6. Conservation Youth Program, Whitman CD
7. Direct Seed Education Program, Whitman CD
8. Northwest Crops Project, Whitman CD
9. Implementation Program, Whitman CD
10. Onsite Septic System Technical Assistance, Whitman County Health
11. Evaluation of Dryland BMPs on Water Quality, WSU
12. Pullman-Moscow Ground Water Model Update, City of Pullman
13. South Fork Palouse River Watershed Plan, Palouse CD
14. Palouse River (North Fork only) Characterization, Palouse CD
15. Palouse River (North Fork only) Watershed Council, Palouse CD

16. Water Quality Data Gap Analysis for the Palouse River Basin of both Washington and Idaho, Palouse CD
17. TMDL for fecal coliform in progress on Palouse River (North Fork only), Palouse CD
18. Water quality monitoring program on Palouse River (North Fork only), Palouse CD
19. North Fork River Watershed Planning Committee, Palouse CD
11. Columbia Basin Groundwater Management Area, Franklin CD/ Benton-Franklin County Health
20. DOE Franklin County Watershed Education Program, Franklin CD
21. Increase Irrigation Efficiencies Program, Franklin CD
22. DOE Crop Remote Sensing Project, Franklin CD
23. Groundwater Nitrate Implementation Project, Franklin CD
24. Dairy Nutrient Management Project, Franklin CD
25. BMP Installation Program, Palouse-Rock Lake CD
26. Rock Creek Monitoring Project, Palouse-Rock Lake CD
27. Alternative Cropping Projects, Palouse-Rock Lake CD
28. CRP Tree Planting Program, Palouse-Rock Lake CD
29. Environmental Quality Incentive Program (EQIP), NRCS
30. Technical Assistance for CRP, NRCS
31. Water Quality Technical Assistance Program, Pine Creek CD
32. Water Quality Education Program, Pine Creek CD
33. Technical Assistance Program, Pine Creek CD
34. Cow Creek Implementation Program, Adams CD
35. Direct Seed Minimum Till Program, Adams CD
36. GWMA Program, Adams CD
37. Fecal Baseline Study, Adams CD
38. Baseline Lower Palouse River Study, Adams CD
39. BMP Implementation Program, Adams CD
40. Riparian Buffer Cost Share Program, Spokane CD
41. Nitrate Education Program, Benton-Franklin County Health
42. On-Site Sewage Program, Benton-Franklin/Whitman/Spokane County Health
43. Wellhead Protection Program, Spokane County Health
44. Environmental Health Education, Spokane County Health
45. Aquifer Protection Program, Spokane County Health

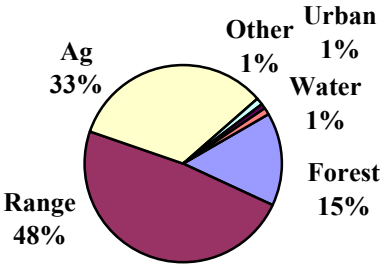
Middle Snake Basin - WRIA #35



WRIA #35 encompasses about 1,440,130 acres of Columbia Basin and Blue Mountain ecoregions. This watershed drains the Snake River and receives an average rainfall of 17 inches.

Demographics

Land use in the Middle Snake Basin



Land Base (in acres)

Federal	279,254	19.4%
State	65,751	4.5%
Local	31	<.01%
Tribal	-0-	-0-
Private	1,095,094	76.1%

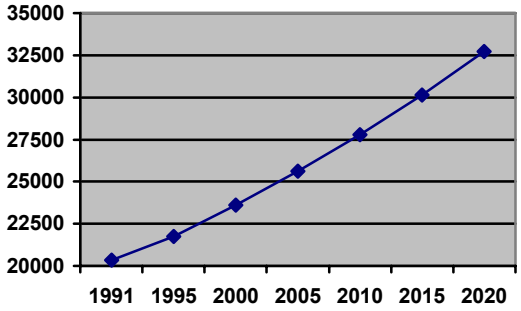
Principal Economic Activity (as total wages)

Services	30%
Government	18%
Retail Trade	26%
Wholesale Trade	16%
Agriculture	10%

Population

There are approximately 23,744 people living in the Middle Snake Basin. The primary population centers are Clarkston, Asotin, and Pomeroy. The majority of people live in unincorporated areas.

Projected population trends



Counties

Garfield (32%) Asotin (28%)
Whitman (20%) Columbia (20%)

Special purpose districts

Conservation Districts: Palouse; Whitman; Columbia; Pomeroy; Asotin County

Principal Cities

Clarkston Pomeroy
Asotin Starbuck

Reservation Lands

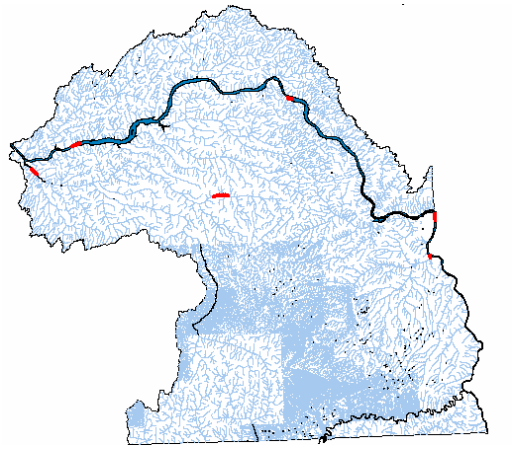
None

General Landscape

This basin is comprised of canyons and highly dissected landforms. The uplifted Columbia basalt plateau has been eroded into a series of knife-edge ridges cut by deep canyons. Soils are a mixture of colluvial canyon soil and soil with a loess or ash mantle. Potential natural vegetation ranges from bunchgrass to Douglas fir with intervening ponderosa pine.

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Asotin Creek and Pataha Creek

High Temperature in Snake River and Tucannon River

Total Dissolved Gas in Snake River

Total Maximum Daily Loads
2 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality
Nitrates – Levels detected > 10 mg/L
Pesticides – Have not been detected in public wells.

Sole Source Aquifer
Lewiston Basin Aquifer

Water Quantity
Over appropriated; low growth

Air Quality
Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health
Commercial Shellfish Growing Areas
None

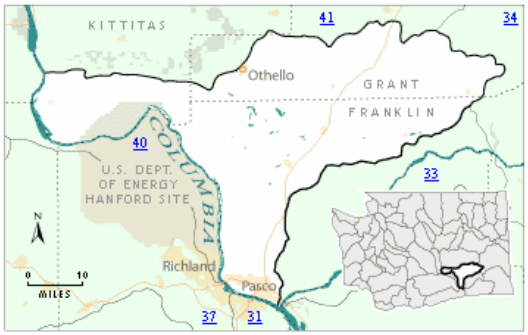
Domestic Water Supply
Within this WRIA are large community water systems that significantly utilize surface water sources.

Salmonid Stock Status
Impaired

3. Water Quality Programs

1. TMDL for Pataha Creek
2. TMDL for Snake River
3. Salmon in the Classroom, Asotin CD
4. Water Quality Monitoring on Asotin Creek, Asotin CD
5. Tree Planting Survival on Asotin Creek, Asotin CD
6. Tree Planting and Bank Stabilization Projects on Asotin Creek, Asotin CD
7. BPA/SRFB Five-Year Direct Seed, Asotin CD
8. WCC/BPA Upland BMPs, Asotin CD
9. BPA/SRFB Riparian Fencing, Asotin CD
10. WCC Conservation Reserve Enhancement Program (CREP), Asotin CD
11. BPA/SRFB Riparian Planting, Asotin CD
12. US Forest Service Challenge Cost-Share Agreements for Fencing and Planting, Asotin CD
13. BPA Native Tree and Shrub Nursery, Asotin CD
14. Pataha Creek Model Watershed Program, Pomeroy CD
15. Garfield County Sub-basin Summary, Pomeroy CD
16. CREP, Pomeroy CD
17. Continuous CRP Program, Pomeroy CD
18. Tucannon River Model Watershed Implementation Program, Columbia CD
19. US Forest Service Northwest Forest Plan
20. Water Study, Pomeroy Public Works

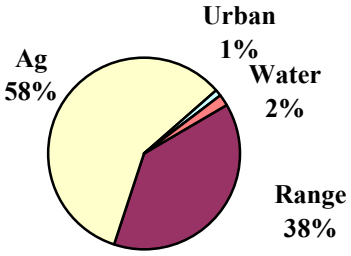
Esquatzel Coulee Basin - WRIA #36



WRIA #36 drains about 1,058,960 acres. This watershed is located within the Columbia Basin ecoregion. It receives only 6 inches of rainfall per year.

Demographics

Land use in the Esquatzel Basin



Land Base (in acres)

Federal	295,637	27.9%
State	32,889	3.1%
Local	-0-	-0-
Tribal	-0-	-0-
Private	730,434	69.0%

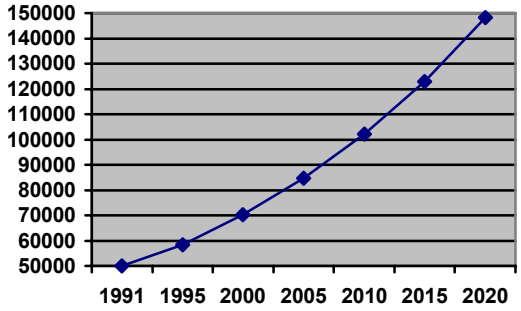
Principal Economic Activity (as total wages)

Agriculture	25%
Retail Trade	13%
Services	18%
Government	18%
Manufacturing	8%
Other	18%

Population

There are approximately 58,290 people living in the Esquatzel Coulee Basin. The primary population centers are Othello and Pasco. The majority of people live in unincorporated areas.

Projected population trends



Counties

Franklin (50%) Adams (33%)
Grant (17%)

Special purpose districts

Conservation Districts: Franklin; Adams; Warden
Irrigation Districts: Franklin County; South Columbia

Principal Cities

Pasco	Othello
Connell	Mattawa
Mesa	Washtuca

Reservation Lands

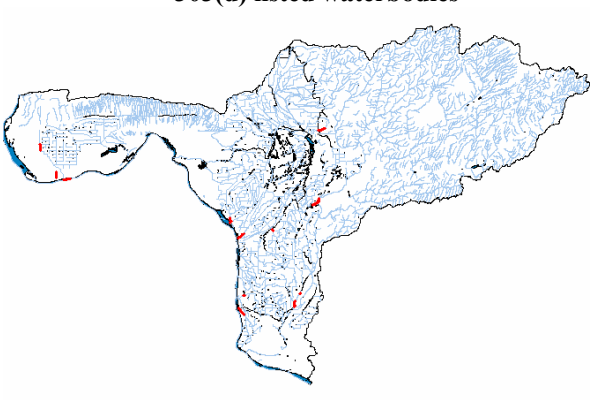
None

General Landscape

The scablands and loess islands were formed as immense floods periodically broke through the ice dams blocking glacial Lake Missoula during the Pleistocene. Soils are typically deep loess on hills and foothills. Potential natural vegetation is big sagebrush, bluebunch wheatgrass, Idaho fescue, and three-tip sagebrush.

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

High Temperature in East Potholes Canal, Eltopia Branch Canal, Esquatzel Coulee, Mattawa Drain, Mattawa Wasteway, Potholes Canal, Scbid PE 16.4 Wasteway, Scooteney Wasteway, and WB5 Wasteway #1

Dissolved Oxygen in East Potholes Canal, Esquatzel Coulee, Potholes Canal, and Scooteney Wasteway

pH in Columbia River, Esquatzel Coulee, and Scooteney Wasteway

Total Maximum Daily Loads

1 TMDL required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected > 10 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer

None

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

Approximately 121,818 fallow acres yearly

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

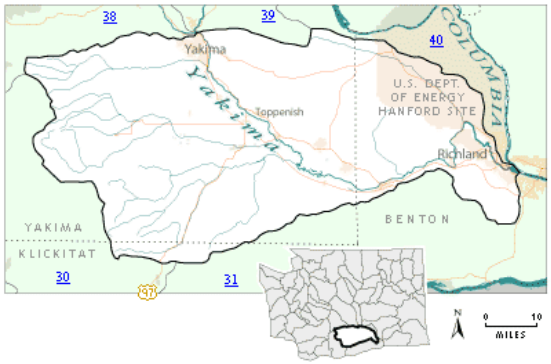
Salmonid Stock Status

Healthy

3. Water Quality Programs

1. TMDLs for Columbia River
2. Mid-Columbia Watershed Planning, Grant County
3. On-site Sewage Program, Benton-Franklin County Health
4. Mid-Columbia Basin Ground Water Management Area, Franklin/Adams/Grant County
5. Othello Water Quality Project, Othello CD
6. Columbia Basin Groundwater Management Area, Franklin CD/ Benton-Franklin County Health
7. DOE Franklin County Watershed Education Program, Franklin CD
8. Increase Irrigation Efficiencies Program, Franklin CD
9. DOE Crop Remote Sensing Project, Franklin CD
10. Groundwater Nitrate Implementation Project, Franklin CD
11. Dairy Nutrient Management Project, Franklin CD
46. Direct Seed Minimum Till Program, Adams CD
47. GWMA Program, Adams CD
48. Fecal Baseline Study, Adams CD
49. Baseline Lower Palouse River Study, Adams CD
50. BMP Implementation Program, Adams CD
51. Nitrate Education Program, Benton-Franklin County Health

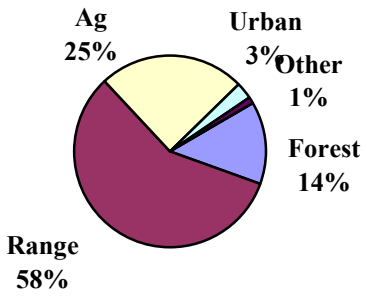
Lower Yakima Basin - WRIA #37



WRIA #37 is a 1,862,225-acre watershed. The majority of the watershed is in the Columbia Basin ecoregion, with a smaller portion in the Eastern Cascade Slopes. Rainfall varies from over 80" in the higher elevations to less than 10" at Kennewick.

Demographics

Land use in the Lower Yakima Basin



Land Base (in acres)

Federal	222,524	12.0%
State	75,028	4.0%
Local	569	<.1%
Tribal	889,943	47.8%
Private	674,161	36.2%

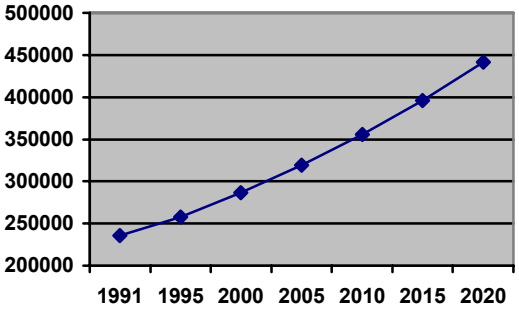
Principal Economic Activity (as total wages)

Agriculture/Forestry	21%
Manufacturing	12%
Retail Trade	15%
Services	20%
Government	14%
Other	18%

Population

There are approximately 277,429 people living in the Lower Yakima Basin. The primary population centers are Yakima, Sunnyside, and Toppenish. The majority of people live in unincorporated areas.

Projected population trends



Counties

Yakima (74%) Benton (24%)
Klickitat (2%)

Special purpose districts

Conservation Districts: South Yakima; North Yakima; Benton; Eastern Klickitat

Irrigation Districts: Benton; Columbia; Grandview; Kennewick; Kiona; Prosser; Ahtanum; Buena; Home; Outlook; Roza-Sunnyside Joint Board; Selah-Moxee; Snipes Mountain; Terrace Heights; Union Gap; Wenas; City of Yakima; Yakima-Tieton; Zillah; Wapato

Principal Cities

Yakima	Sunnyside	Moxee
Toppenish	Grandview	Ahtanum
Prosser	West Richland	Union Gap

Reservation Lands

Confederated Tribes and Bands of the Yakama Indian Nation

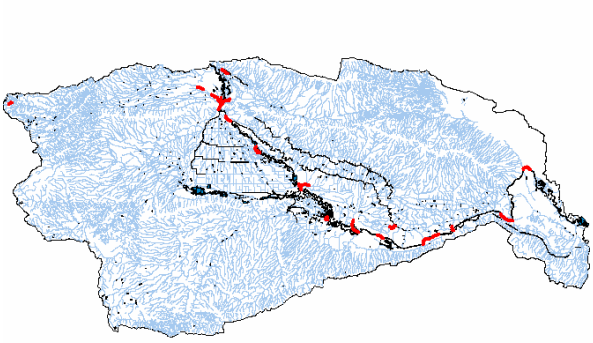
General Landscape

The upper basin is a series of anticlinal ridges and synclinal valleys. The lower basin was formed primarily through the flooding of Lake Missoula. Flood waters tearing through the basin dropped their load of loess, sand, and outwash gravel. Native vegetation consists of big sagebrush/

bluebunch wheatgrass associations in the desert lowlands and Ponderosa Pine/Doug fir in the higher elevations.

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Granger Drain, Moxee Drain, Wide Hollow Creek, and Yakima River

High Temperature in Granger Drain, Moxee Drain, Snipes Creek, Spring Creek, Sulfur Creek Wasteway, Wide Hollow Creek, and Yakima River

Dissolved Oxygen in Granger Drain, Moxee Drain, Snipes Creek, Wide Hollow Creek, and Yakima River

pH in Granger Drain, Moxee Drain, and Yakima River

Metals in Yakima River

Pesticides in Granger Drain, Moxee Drain, Sulfur Creek Wasteway, Wide Hollow Creek, and Yakima River

Nutrients in Giffin Lake and Granger Drain

Low Instream Flows in Yakima River

PCBs in Yakima River

Turbidity in Yakima River

Total Maximum Daily Loads

10 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrate – Levels detected > 10 mg/L
Pesticides – Have been detected in public wells

Sole Source Aquifer

None

Water Quantity

Over appropriated; high growth

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)
Approximately 29,348 fallow acres yearly

Public Health

Commercial Shellfish Growing Areas
None

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

Salmonid Stock Status

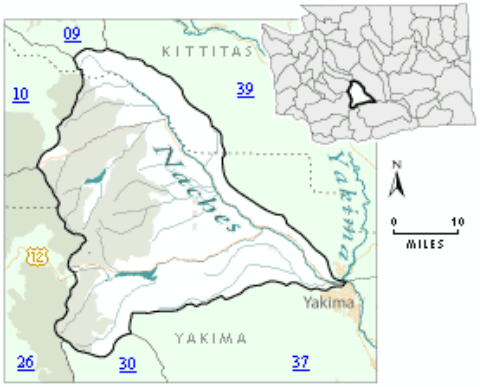
Threatened

3. Water Quality Programs

1. TMDL for Granger Drain
2. TMDL for Griffin Lake
3. TMDL for Yakima River
4. Yakima River Water Quality Management Plan, Yakima Valley/Benton/Kittittas Council of Governments
5. Moxee Drain Irrigated Agriculture BMP Implementation, North Yakima CD
6. Moxee Watershed Plan - PL566, NRCS and North Yakima CD
7. Environmental Quality Incentives Program (EQIP), NRCS
8. Water Quality Monitoring Project, North Yakima CD
9. Lower Yakima River Suspended Sediment TMDL, Ecology
10. Stormwater Quality Management Plan, City of Yakima

11. Ground water monitoring of the Toppenish Basin, Yakama Indian Nation
12. Enclose Conduits and Canal Automation, Roza ID
13. Enclose Conduits, Sunnyside ID
14. Upper Yakima Valley Wellhead Protection, Yakima County
15. Yakima River Water Quality Program, Benton CD
16. Salmonid Habitat Improvement Project, Benton CD
17. Endangered Species Habitat Improvement Project, Benton CD
18. Irrigation Management Zone Demonstration Project, Benton CD
19. Water Efficiency Program, North Yakima CD
20. Water Quality Monitoring Program, North Yakima CD
21. Riparian Restoration Program, North Yakima CD
22. Water Quality Implementation Program, North Yakima CD
23. Moxee Drain Irrigation Agriculture BMP Implementation Program, North Yakima CD
24. Moxee Watershed Plan, North Yakima CD
25. Granger Drainage Run-off Reduction Program, South Yakima CD
26. Irrigated Agriculture Conversion Program, South Yakima CD
27. Implementation Program, South Yakima CD
28. Dairy Nutrient Management Program, South Yakima CD
29. Nitrate Education Program, Benton-Franklin County Health
30. Yakima River Watershed Plan, Yakima County/Multiagency
31. Critical Areas Ordinance, Benton County Planning

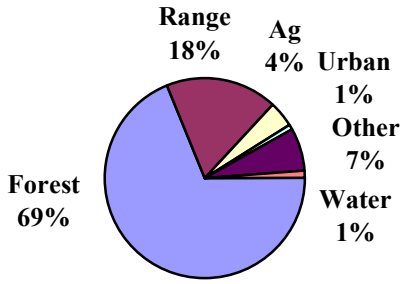
Naches Basin - WRIA #38



WRIA #38 encompasses about 709,990 acres. This watershed is located within the Eastern Cascade Slope, Cascade, and Columbia Basin ecoregions. It receives nearly 46 inches of rainfall per year.

Demographics

Land use in the Naches Basin



Land Base (in acres)

Federal	510,751	71.9%
State	60,590	8.5%
Local	-0-	-0-
Tribal	139	<.1%
Private	138,510	19.5%

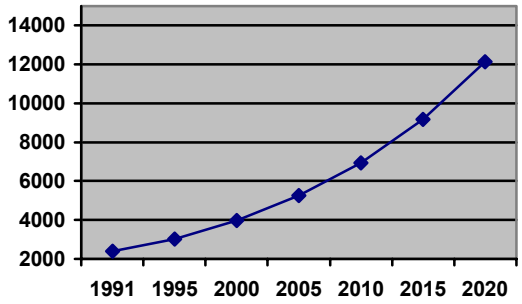
Principal Economic Activity (as total wages)

Agriculture/Forestry	21%
Services	20%
Retail Trade	15%
Government	14%
Manufacturing	12%

Population

There are approximately 4,006 people living in the Naches Basin. The primary population centers are Yakima, Tieton, and Naches. The majority of people live in unincorporated areas.

Projected population trends



Counties

Yakima (90%) Kittitas (10%)

Special purpose districts

Conservation Districts: North Yakima

Irrigation Districts: Yakima-Tieton; South Naches; Naches-Selah; Wapato

Principal Cities

Yakima Tieton
Naches

Reservation Lands

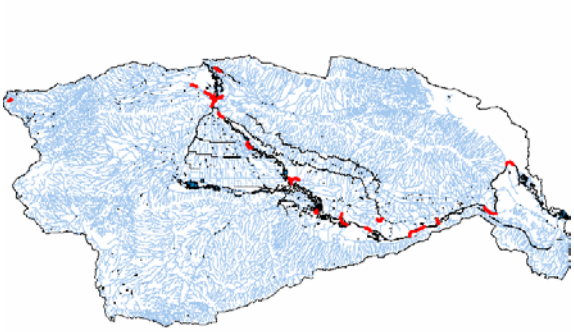
None

General Landscape

High mountains, plateaus, and buttes , both glaciated and unglaciated. Perennial streams are high to medium gradient. Typical soils include stony loam, sandy loam, and gravelly loam. Potential natural vegetation is ponderosa pine, bitterbrush, Oregon white oak, grand fir, and Douglas fir. Mean temperature ranges from 16/35° (winter) to 47/82° (summer).

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Cowiche Creek

High Temperature in American River, Bear Creek, Blowout Creek, Bumping River, Cowiche Creek, Crow Creek, Gold Creek, Little Naches River, Little Rattlesnake Creek, Mathew Creek, Naches River, Nile Creek, Rattlesnake Creek, Reynolds Creek, and Tieton River

pH in Naches River

Metals in Naches River

Low Instream Flows in Cowiche Creek

Ammonia in Myron Lake

Total Maximum Daily Loads

5 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected > 5 mg/L
Pesticides – Have been detected in public wells

Sole Source Aquifer

None

Water Quantity

Over appropriated; low growth

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health

Commercial Shellfish Growing Areas
None

Domestic Water Supply

No significant use of surface water sources

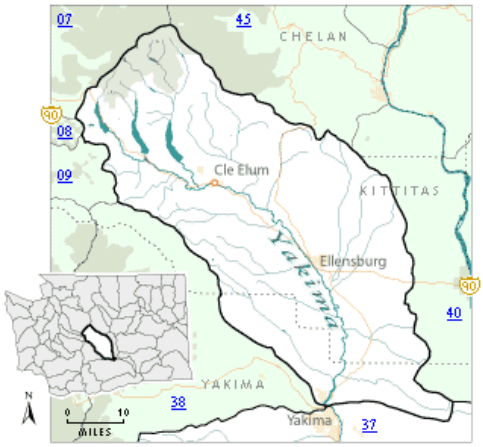
Salmonid Stock Status

Impaired

3. Water Quality Programs

1. US Forest Service Watershed Analysis for: Little Naches; Naches Mainstem; Wenas Creek; Bumbing and American River; upper and lower Tieton; Oak Creek; and Rattlesnake Creek.
2. DNR Watershed Analysis for Naches Pass; Cowiche Creek; and Reynolds Creek.
3. Water Quality Monitoring, North Yakima CD
4. Conservation Reserve Enhancement Project (CREP), NRCS
5. US Forest Service Northwest Forest Plan
6. Upper Yakima Valley Wellhead Protection, Yakima County
7. Yakima Basin Water Quality Plan, Yakima Valley Conference of Governments
8. Enclose irrigation canal, Naches-Selah Irrigation District
9. Water Efficiency Program, North Yakima CD
10. Water Quality Monitoring Program, North Yakima CD
11. Riparian Restoration Program, North Yakima CD
12. Water Quality Implementation Program, North Yakima CD
13. Yakima River Watershed Plan, Yakima County/Multiagency

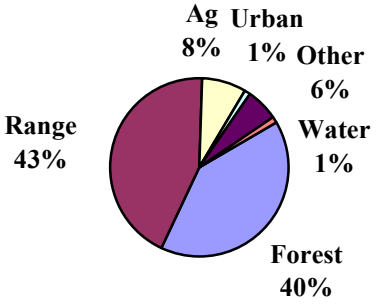
Upper Yakima Basin - WRIA #39



WRIA #39 encompasses nearly 1,366,935 acres. The Cascades and Columbia Basin ecoregions make up most of this watershed. Rainfall averages 30 inches per year.

Demographics

Land use in the Upper Yakima



Land Base (in acres)

Federal	495,740	36.3%
State	216,125	15.8%
Local	33	<.01%
Tribal	-0-	-0-
Private	655,037	47.9%

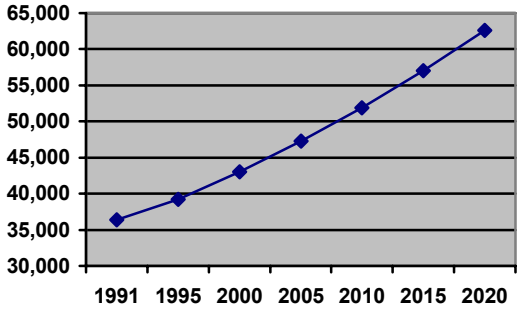
Principal Economic Activity (as total wages)

Agriculture/Forestry	7%
Retail Trade	24%
Services	19%
Government	33%
Other	17%

Population

There are approximately 47,216 people living in the Upper Yakima Basin. The primary population centers are Ellensburg and Cle Elum. The majority of people live in unincorporated areas.

Projected population trends



Counties

Kittitas (85%)
Yakima (15%)

Special Purpose Districts

Conservation Districts: Kittitas County; North Yakima

Irrigation Districts: Cascade; Kittitas Reclamation; Wenas; Roza; Selah-Moxee; and Westside

Principal Cities

Ellensburg
Cle Elum
Kittitas
Selah
Roslyn

Reservation Lands

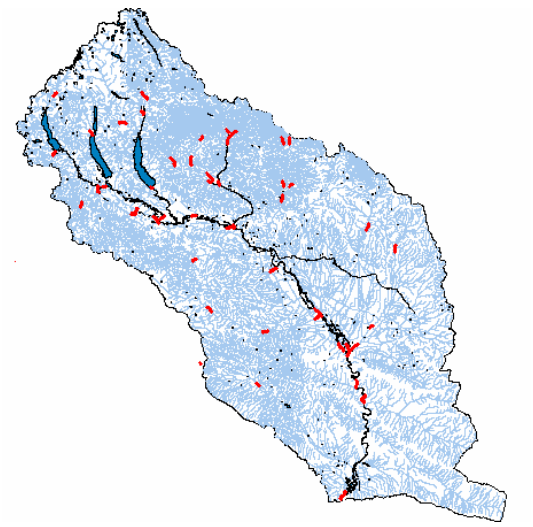
None

General Landscape

Upper elevation is mountainous with V-shaped valleys with high gradient streams. Kittitas Valley is a synclinal dip with deposition from surrounding mountains. Native vegetation consist of Grand Fir, Douglas Fir, Ponderosa Pine and big sagebrush/ bluebunch wheatgrass associations.

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Cooke Creek and Wilson Creek

High Temperature in Big Creek, Blue Creek, Cabin Creek, Cherry Creek, Cle Elum River, Cooke Creek, Cooper River, Gale Creek, Gold Creek, Iron Creek, Log Creek, Lookout Creek, Manastash Creek, Meadow Creek, Naneum Creek, Stafford Creek, Swauk Creek, Taneum Creek, Teanaway River, Thorp Creek, Waptus River, Williams Creek, Wilson Creek, and Yakima River

Dissolved Oxygen in Cooke Creek, Selah Ditch, and Yakima River

Metals in Yakima River

Pesticides in Cherry Creek and Yakima River

Low Instream Flow in Big Creek, Manastash Creek, Taneum Creek, Teanaway River, and Wenas Creek

Ammonia in Selah Ditch

Total Maximum Daily Loads

6 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected > 10 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer

None

Water Quantity

Over appropriated; medium growth

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

Salmonid Stock Status

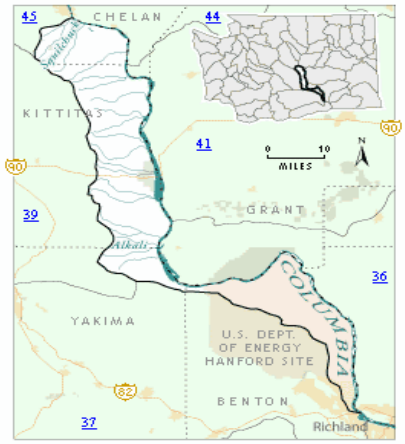
Impaired

3. Water Quality Programs

1. TMDL for Teanaway River
2. TMDL for Upper Yakima
3. TMDL for Crystal Creek
4. Yakima Training Center Erosion Control, US Army
5. TMDL for sediments and pesticides, Ecology
6. Teanaway River Temperature Control
7. US Forest Service watershed analysis for Cle Elum, Swauk Creek, Teanaway River, Table Mountain, Box Canyon, Yakima Basin, and Taneum Creek.
8. DNR watershed analysis for Big Creek, Quartz Mountain, Teanaway North, West Teanaway, Alps, Naneum Creek, Keechelus, and Mosquito Creek
9. US Forest Service Northwest Forest Plan
10. Onsite Sewage Program, Kittitas County Health

11. DOE Monitoring & Landowner Assistance, Kittitas CD
12. KCCD 2002 Implementation Project, Kittitas CD
13. Conservation Reserve Enhancement Program (CREP), Kittitas CD
14. Environmental Quality Incentive Program, NRCS
15. Water Efficiency Program, North Yakima CD
16. Water Quality Monitoring Program, North Yakima CD
17. Riparian Restoration Program, North Yakima CD
18. Water Quality Implementation Program, North Yakima CD
19. Dairy Nutrient Management Program, South Yakima CD
20. Yakima River Watershed Plan, Yakima County/Multiagency
21. Cooperative Water Quality Monitoring Program, Kittitas County Water Purveyors
22. Kittitas TMDL Support & Monitoring Program, Kittitas County Water Purveyors

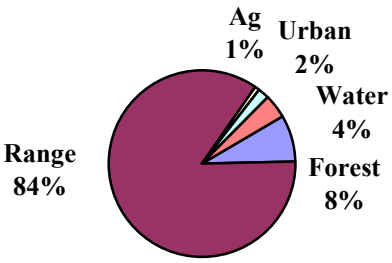
Alkali-Squilchuck Basin - WRIA #40



WRIA #40 encompasses about 541,356 acres. Bordering the Columbia River, this watershed is within the Columbia Basin and Cascade ecoregions. Average rainfall is 18 inches a year.

Demographics

Land use in the Alkali/Squilchuck Basin



Land Base (in acres)

Federal	250,711	46.3%
State	159,006	29.4%
Local	-0-	-0-
Tribal	-0-	-0-
Private	131,639	24.3%

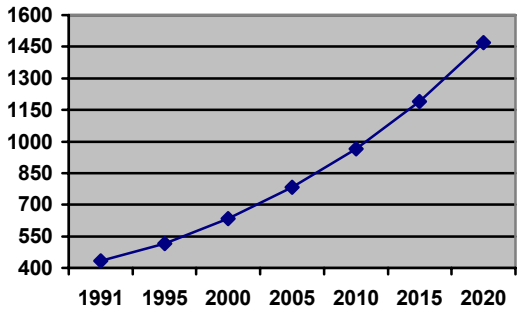
Principal Economic Activity (as total wages)

Agriculture	28%
Manufacturing	16%
Retail Trade	12%
Government	19%
Other	25%

Population

There are approximately 614 people living in the Alkali-Squilchuck Basin. The primary population center is Richland. The majority of people live in unincorporated areas.

Projected population trends



Counties

Kittitas (48%) Benton (29%)
Chelan (14%) Yakima (9%)

Special purpose districts

Conservation Districts: Kittitas County, Benton, Chelan County, North Yakima, and South Yakima

Principal Cities

Richland Hanford
Wenatchee Heights Malaga

Reservation Lands

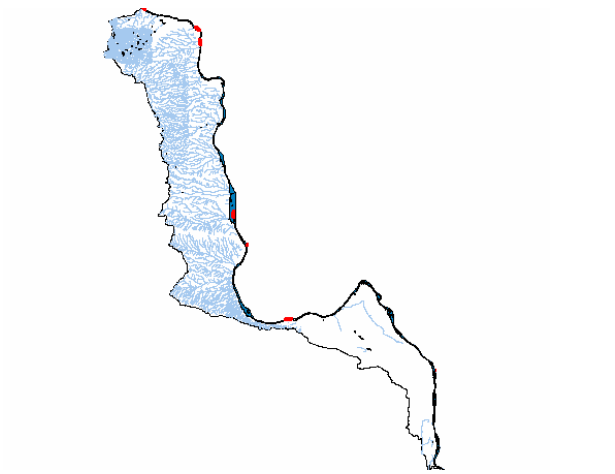
None

General Landscape

The basin was formed primarily through the flooding of Lake Missoula. Floodwaters tearing through the basin dropped their load of loess, sand, and outwash gravel. Native vegetation consists of big sagebrush and bluebunch wheatgrass associations.

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Total Dissolved Gas in Columbia River

Radioactive Material at the Hanford Reservation

Total Maximum Daily Loads
1 TMDL required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality
Nitrates –- Levels detected > 10 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer
None

Water Quantity
No Concerns

Air Quality
Windblown dust from bare, dry agricultural land, especially fallow fields)
Approximately 35,462 fallow acres yearly

Public Health
Commercial Shellfish Growing Areas
None

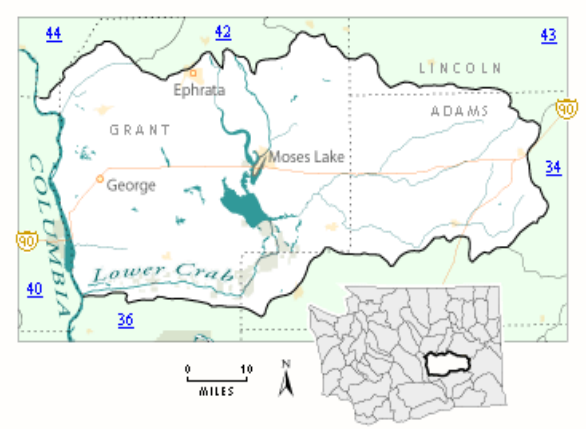
Domestic Water Supply
No significant use of surface water sources

Salmonid Stock Status
Healthy

3. Water Quality Programs

1. TMDLs for Columbia River
2. Instream flows of Columbia River under 173-563.WAC, Ecology
3. Kittitas Valley Water Quality, Kittitas CD
4. Stormwater Treatment Project, Kittitas County Water District #2
5. Nitrate Education Program, Benton-Franklin County Health
6. On-Site Sewage Program, Benton-Franklin County Health
7. Columbia Basin Groundwater Management Area, Benton-Franklin County Health

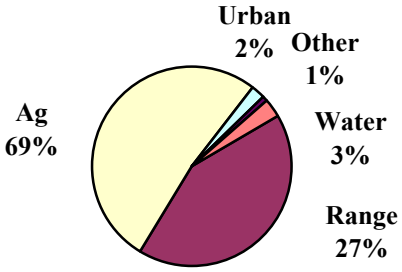
Lower Crab Basin - WRIA #41



WRIA #41 encompasses about 1,622,130 acres. This watershed is located within the Columbia Basin ecoregion. It only averages 6 inches of rain per year.

Demographics

Land use in the Lower Crab Basin



Land Base (in acres)

Federal	276,755	17.1%
State	89,007	5.5%
Local	-0-	-0-
Tribal	-0-	-0-
Private	1,256,368	77.4%

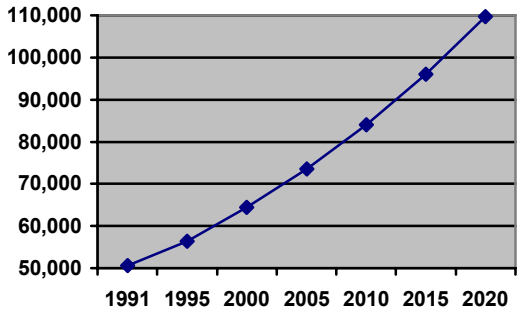
Principal Economic Activity (as total wages)

Agriculture	28%
Manufacturing	16%
Retail Trade	12%
Government	19%
Other	25%

Population

There are approximately 64,435 people living in the Lower Crab Basin. The primary population centers are Moses Lake, Ephrata, and Quincy.

Projected population trends



Counties

Grant (66%) Adams (32%)
Lincoln (2%)

Special purpose districts

Conservation Districts: Upper Grant; Lincoln; Adams; Warden

Irrigation Districts: East Columbia Basin; Quincy-Columbia Basin; Moses Lake Irrigation and Rehabilitation

Principal Cities

Moses Lake	Ephrata
Othello	Quincy
Ritzville	Warden

Reservation Lands

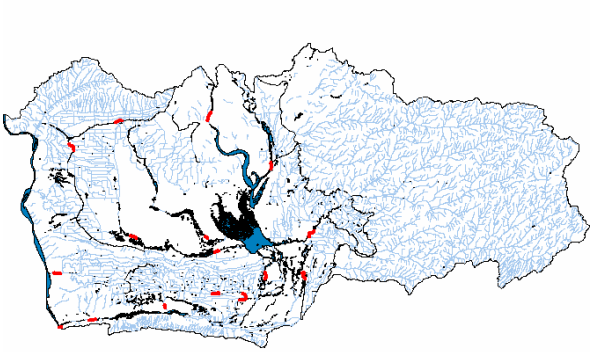
None

General Landscape

The scablands and loess islands were formed as immense floods periodically broke through the ice dams blocking glacial Lake Missoula during the Pleistocene. Soils are typically deep loess on hills and foothills. Potential natural vegetation is big sagebrush, bluebunch wheatgrass, Idaho fescue, and three-tip sagebrush.

Water Quality Summary

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

High Temperature in Crab Creek, Crab Creek Lateral, East Potholes Canal, Frenchman Hills Wasteway, Lind Coulee, Red Rock Coulee, Rocky Ford Creek, Sand Hollow Creek, W645W Wasteway, West Canal, and Winchester Wasteway

Dissolved Oxygen in East Potholes Canal, Lind Coulee, Red Rock Coulee, Rocky Ford Creek, and W645W Wasteway

pH in Crab Creek, Frenchman Hills Wasteway, Lind Coulee, Red Rock Coulee, Rocky Ford Creek, Sand Hollow Creek, and Winchester Wasteway

Pesticides in Crab Creek and Potholes Lake

PCBs in Crab Creek

Total Dissolved Gas in Columbia River

Total Maximum Daily Loads

4 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected > 10 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer

None

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)
Approximately 117,847 fallow acres yearly

Public Health

Commercial Shellfish Growing Areas
None

Domestic Water Supply
No significant use of surface water sources

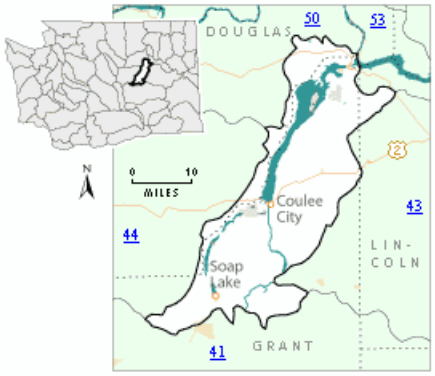
Salmonid Stock Status
Healthy

3. Water Quality Programs

1. TMDL for BOR Waterways
2. TMDL for Moses Lake
3. TMDLs for Columbia River
4. Ground Water Management Area (GWMA) plan for the Mid-Columbia, Grant/Benton-Franklin County Health
5. Nitrate Monitoring and Wellhead Protection Program, City of Quincy
6. Othello/Warden Irrigation Management Project
7. Othello Water Quality Project, Othello CD
8. Local Solutions for Nitrate Reduction, Othello CD
9. Dairy Management Program, Othello CD
10. Mid Columbia Watershed Planning, Grant County
11. Weber Coulee Watershed Planning and Implementation, Adams CD
12. Lind Coulee Water Quality Project, Warden CD
13. Rill Irrigation Manure Management Program, Upper Grant CD
14. Bilingual Mobile Irrigation Education Program, Upper Grant CD
15. Implementation Program, Upper Grant CD
16. Dairy Nutrient Management Program, Upper Grant CD
17. Direct Seed Minimum Till Program, Adams CD
18. GWMA Program, Adams CD
19. Fecal Baseline Study, Adams CD
20. Baseline Lower Palouse River Study, Adams CD
21. BMP Implementation Program, Adams CD

22. Nitrate Education Program, Benton-Franklin County Health
23. On-Site Sewage Program, Benton-Franklin/Grant County Health

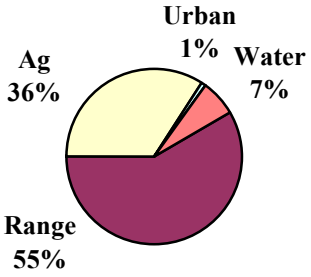
Grand Coulee Basin - WRIA #42



WRIA #42 lies in the heart of the Columbia Basin ecoregion. This watershed drains nearly 482,825 acres. It receives about 7 inches of rain per year.

Demographics

Land Use in the Grand Coulee Basin



Land Base (in acres)

Federal	41,723	8.6%
State	42,818	8.9%
Local	25	<.01%
Tribal	-0-	-0-
Private	398,259	82.5%

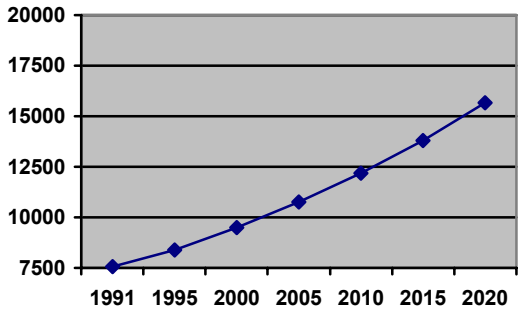
Principal Economic Activity (as total wages)

Agriculture/Forestry	25%
Government	20%
Manufacturing	16%
Retail Trade	15%
Other	24%

Population

There are approximately 8,384 people living in the Grand Coulee Basin. The primary population centers are Ephrata and Soap Lake. The majority of people live in unincorporated areas.

Projected population trends



Counties

Grant (83%) Douglas (14%)
Lincoln (3%)

Special purpose districts

Conservation Districts: Upper Grant; Lincoln County; Foster Creek

Principal Cities

Ephrata	Soap Lake
Grand Coulee	Electric City
Coulee City	Hartline

Reservation Lands

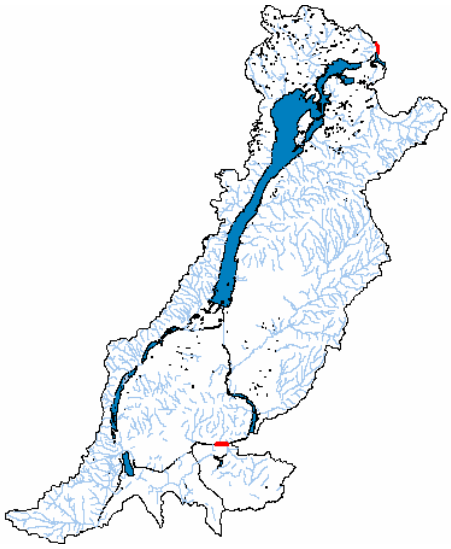
None

General Landscape

The scablands and loess islands were formed as immense floods periodically broke through the ice dams blocking glacial Lake Missoula during the Pleistocene. Soils are typically deep loess on hills and foothills. Potential natural vegetation is big sagebrush, bluebunch wheatgrass, Idaho fescue, and three-tip sagebrush.

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

High Temperature in Main Canal

Dissolved Oxygen in Main Canal

Total Maximum Daily Loads
1 TMDL required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality
Nitrates – Levels detected > 10 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer
None

Water Quantity
No concerns

Air Quality
Windblown dust from bare, dry agricultural land, especially fallow fields)
Approximately 78,634 fallow acres yearly

Public Health

Commercial Shellfish Growing Areas
None

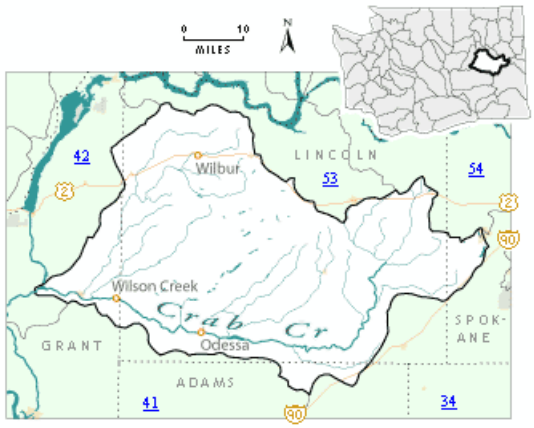
Domestic Water Supply
No significant use of surface water sources

Salmonid Stock Status
Healthy

3. Water Quality Programs

1. Assess nitrate leaching from irrigation, Upper Grant CD
2. Black Sands Water Quality Project, Upper Grant CD
3. Ground Water Management Area (GWMA) plan for the Mid-Columbia, Grant/Chelan-Douglas County Health
8. Nitrate Education Program, Benton-Franklin County Health
4. On-Site Sewage Program, Benton-Franklin/Grant/Chelan-Douglas County Health
5. Columbia Basin Groundwater Management Area, Benton-Franklin/ Grant/Chelan-Douglas County Health

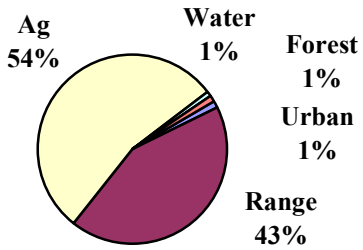
Upper Crab-Wilson Basin - WRIA 43



WRIA #43 encompasses about 1,185,282 acres of the Columbia Basin ecoregion. This large watershed receives only 10 inches of rainfall per year.

Demographics

Land use in the Upper Crab/Wilson



Land Base (in acres)

Federal	10,851	.9%
State	36,678	3.1%
Local	-0-	
Tribal	-0-	
Private	1,138,453	96.0%

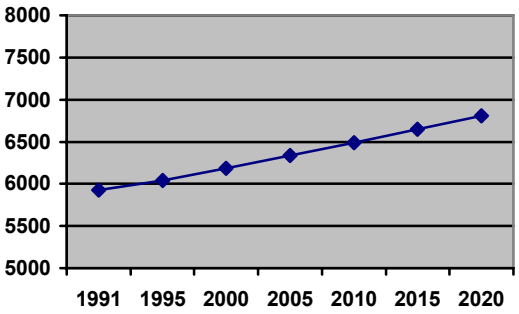
Principal Economic Activity (as total wages)

Agriculture/Forestry	11%
Retail Trade	14%
Services	14%
Government	43%
Other	18%

Population

There are approximately 6,043 people living in the Upper Crab-Wilson Basin. The primary population centers are Odessa and Medical Lake.

Projected population trends



Counties

Lincoln (88%) Grant (8%)
Spokane (2%) Adams (2%)

Special purpose districts

Conservation Districts: Lincoln County; Upper Grant; Spokane County; Adams

Principal Cities

Medical Lake Odessa
Wilbur Reardan
Harrington Almira

Reservation Lands

None

General Landscape

The scablands and loess islands were formed as immense floods periodically broke through the ice dams blocking glacial Lake Missoula during the Pleistocene. Soils are typically deep loess on hills and foothills. Potential natural vegetation is big sagebrush, bluebunch wheatgrass, Idaho fescue, and three-tip sagebrush.

Surface Water Quality

303(d) listed waterbodies

1. 303(d) Listed Problem Areas

Fecal Coliform in Medical, West Lake

pH in Crab Creek

Nutrients in Medical, West Lake

Total Maximum Daily Loads

1 TMDL required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected > 10 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer

Spokane Valley Rathdrum Prairie Aquifer

Water Quantity

No concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

Approximately 194,219 fallow acres yearly

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

No significant use of surface water sources

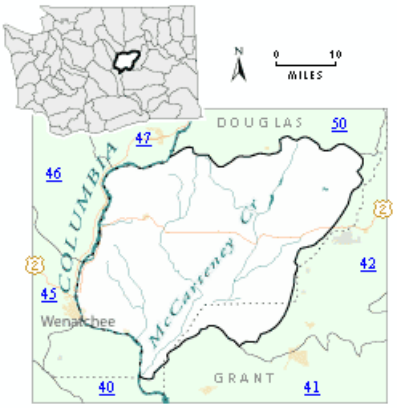
Salmonid Stock Status

Healthy

3. Water Quality Programs

1. Onsite System Technical Assistance, Lincoln/Grant/Benton-Franklin/Spokane County Health
2. Baseline Water Quality Monitoring, Lincoln CD
3. DOE Water Quality Monitoring Program, Lincoln CD
4. Water Quality Implementation Program, Lincoln CD
5. Watershed Planning Program, Lincoln CD
6. Agricultural BMP Education Project, Lincoln CD
7. Direct Seed Minimum Till Program, Adams CD
8. GWMA Program, Adams CD
9. Fecal Baseline Study, Adams CD
10. Baseline Lower Palouse River Study, Adams CD
11. BMP Implementation Program, Adams CD
12. 2514 Watershed Planning Program, Stevens CD
13. Riparian Buffer Cost Share Program, Spokane CD
14. Nitrate Education Program, Benton-Franklin County Health
15. Columbia Basin Groundwater Management Area, Benton-Franklin County Health
16. Wellhead Protection Program, Spokane County Health
17. Site Hazard Assessment, Spokane County Health
18. Environmental Health Education, Spokane County Health
19. Chemical Physical Hazards Program, Spokane County Health
20. Aquifer Protection Program, Spokane County Health

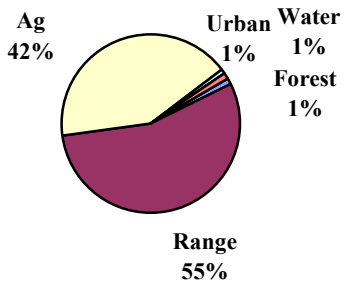
Moses Coulee Basin - WRIA #44



WRIA #44 encompasses nearly 730,029 acres and is located within the Columbia Basin ecoregion. This watershed receives only 7 inches of rainfall per year.

Demographics

Land use in the Moses Coulee Basin



Land Base (in acres)

Federal	31,123	4.3%
State	58,141	8.0%
Local	-0-	
Tribal	-0-	
Private	640,765	87.7%

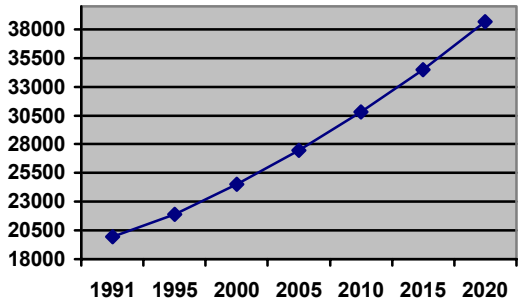
Principal Economic Activity (as total wages)

Agriculture	35%
Retail Trade	18%
Government	19%
Services	12%
Other	16%

Population

There are approximately 23,897 people living in the Moses Coulee Basin. The primary population centers are East Wenatchee and Waterville.

Projected population trends



Counties

Douglas (93%)
Grant (7%)

Special purpose districts

Conservation Districts: Foster Creek; Upper Grant; South Douglas

Irrigation Districts: Greater East Wenatchee; Palisades

Principal Cities

East Wenatchee Waterville
Rock Island

Reservation Lands

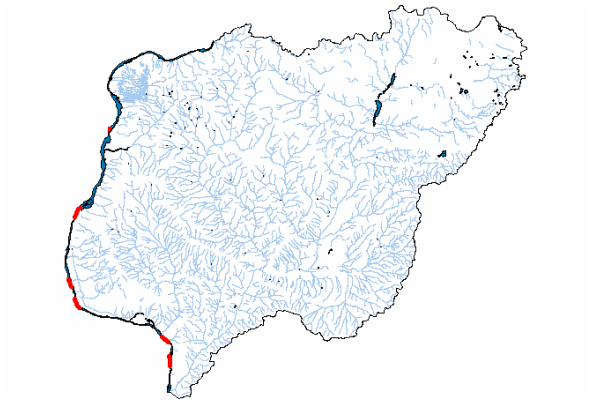
None

General Landscape

The scablands and loess islands were formed as immense floods periodically broke through the ice dams blocking glacial Lake Missoula during the Pleistocene. Soils are typically deep loess on hills and foothills. Potential natural vegetation is big sagebrush, bluebunch wheatgrass, Idaho fescue, and three-tip sagebrush.

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

High Temperature in Columbia River

Total Maximum Daily Loads
1 TMDL required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality
Nitrates – Levels detected > 10 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer
None

Water Quantity
No Concerns

Air Quality
Windblown dust from bare, dry agricultural land, especially fallow fields)
Approximately 141,541 fallow acres yearly

Public Health
Commercial Shellfish Growing Areas
None

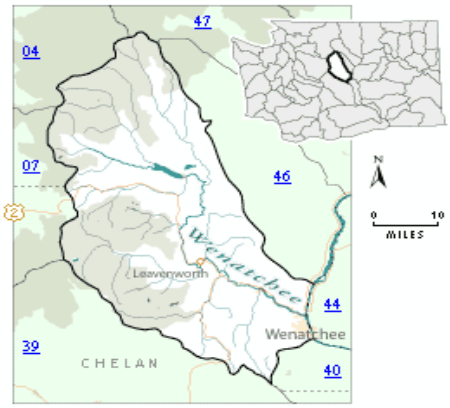
Domestic Water Supply
No significant use of surface water sources

Salmonid Stock Status
Healthy

3. Water Quality Programs

1. TMDLs for Columbia River
2. Watershed Planning under the Watershed Management Act (2514 WAC)
3. Instream flows of Columbia River under 173.563 WAC, Ecology
4. Douglas County Wellhead Protection Study, Douglas County
5. Douglas County Watershed Plan Phase II, Foster CD
6. On-Site Sewage System Program, Chelan-Douglas/Benton-Franklin County Health
9. Nitrate Education Program, Benton-Franklin County Health
7. Columbia Basin Groundwater Management Area, Benton-Franklin County Health

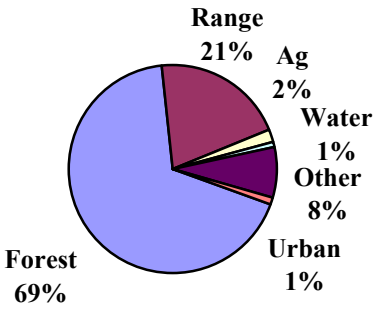
Wenatchee Basin - WRIA #45



WRIA #45 encompasses about 877,392 acres. This watershed is located within the Cascades and Columbia Basin ecoregions. Rainfall averages 56 inches per year.

Demographics

Land use in the Wenatchee Basin



Land Base (in acres)

Federal	689,481	78.6%
State	15,126	1.7%
Local	-0-	
Tribal	-0-	
Private	172,785	19.7%

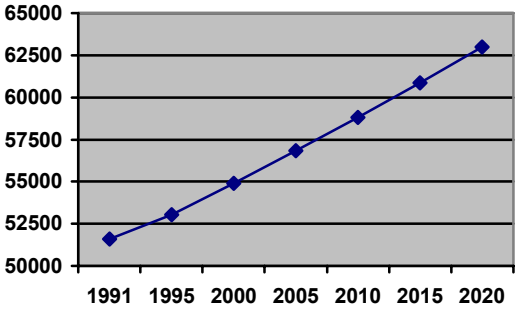
Principal Economic Activity (as total wages)

Agriculture	23%
Retail Trade	17%
Services	18%
Government	17%
Other	25%

Population

There are approximately 55,055 people living in the Wenatchee Basin. The primary population centers are Wenatchee, Cashmere, and Leavenworth.

Projected population trends



Counties

Chelan (100%)

Special purpose districts

Chelan County Conservation District

Irrigation Districts: Beehive; Icicle; Lower Squilchuck; Peshastin; Stemilt; Wenatchee Reclamation; Wenatchee Heights; Wenatchee-Chewawa; Lower Stemilt; Millerdale

Principal Cities

Wenatchee	Cashmere
Leavenworth	Peshastin

Reservation Lands

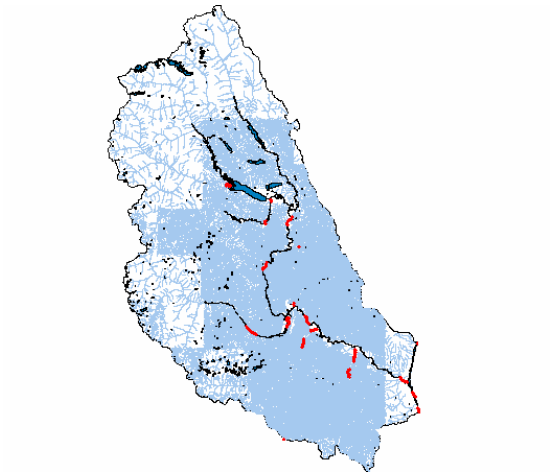
None

General Landscape

Steep, glaciated, mountains, ridges, and U-shaped valleys with high gradient streams and rivers. Typical soils include deep loams: silt loam, sandy loam, gravelly loam, and cindery sandy loam. Potential natural vegetation is ponderosa pine, Douglas fir, grand fir, and pine grass. Mean temperature ranges from 16/32° (winter) to 48/78° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Brender Creek, Chumstick Creek, and Mission Creek

High Temperature in Chiwaukum Creek, Icicle Creek, Little Wenatchee River, Mission Creek, Nason Creek, Peshastin Creek, and Wenatchee River

Dissolved Oxygen in Brender Creek, Chumstick Creek, Icicle Creek, and Wenatchee River

pH in Chumstick Creek, Icicle Creek, and Wenatchee River

Pesticides in Mission Creek

Low Instream Flows in Chumstick Creek, Icicle Creek, Mission Creek, Peshastin Creek, and Wenatchee River

Water Column Bioassay in Columbia River

Total Dissolved Gas in Columbia River

Total Maximum Daily Load

7 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected > 10 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer

None

Water Quantity

Over appropriated; medium growth

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

No significant use of surface water sources

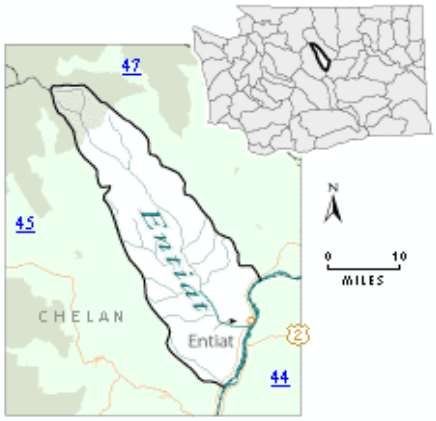
Salmonid Stock Status

Threatened

3. Water Quality Programs

1. TMDL for Wenatchee River Basin
2. TMDL for Mission Creek
3. Wenatchee Watershed Implementation Plan, Chelan CD
4. TMDL & BMP Implementation Project, Chelan CD
5. Water Quality Subcommittee, Chelan CD
6. Coastal Protection Program, Chelan CD
7. Conservation Reserve Enhancement Program, Chelan CD
8. Instream flows of Wenatchee Basin, Ecology
9. US Forest Service Northwest Forest Plan
10. Lake Wenatchee Ground Water Assessment, Chelan County PUD#1
11. Kids in the Orchard Industry Education Program, Chelan CD
12. Kids in the Creek, Chelan CD
13. Envirothon, Chelan CD
14. On-Site Program, Chelan-Douglas County Health
15. Make A Difference Day, Chelan County

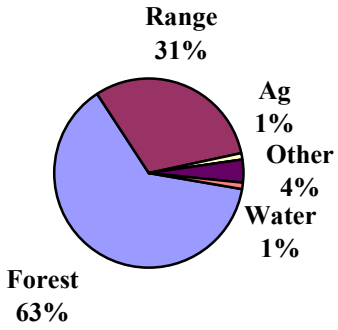
Entiat Basin - WRIA #46



WRIA #46 encompasses about 305,529 acres. This watershed is located within the Cascades and Columbia Basin ecoregions. It receives nearly 39 inches of rain per year.

Demographics

Land use in the Entiat



Land Base (in acres)

Federal	249,626	81.7%
State	15,294	5.0%
Local	-0-	
Tribal	-0-	
Private	40,609	13.3%

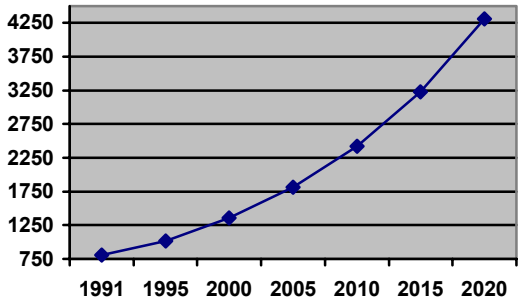
Principal Economic Activity (as total wages)

Agriculture	23%
Retail Trade	17%
Services	18%
Government	17%
Other	25%

Population

There are approximately 1,308 people living in the Entiat Basin. The primary population center is Entiat. The majority of people live in unincorporated areas.

Projected population trends



Counties

Chelan (100%)

Special purpose districts

Chelan County Conservation District
Entiat Irrigation District

Principal Cities

Entiat
Ardenvoir

Reservation Lands

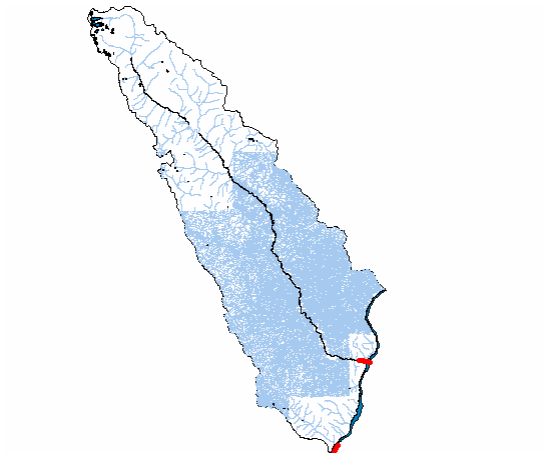
None

General Landscape

Steep, glaciated, mountains, ridges, and U-shaped valleys with high gradient streams and rivers. Typical soils include deep loams: silt loam, sandy loam, gravelly loam, and cindery sandy loam. Potential natural vegetation is ponderosa pine, Douglas fir, grand fir, and pine grass. Mean temperature ranges from 16/32° (winter) to 48/78° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Low Instream Flow in Entiat River

Total Maximum Daily Loads
1 TMDL required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality
Nitrates – Levels detected > 10 mg/L
Pesticides – Have not been detected in public wells.

Sole Source Aquifer
None

Water Quantity
Flows not set; growth pressure

Air Quality
Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health
Commercial Shellfish Growing Areas
None

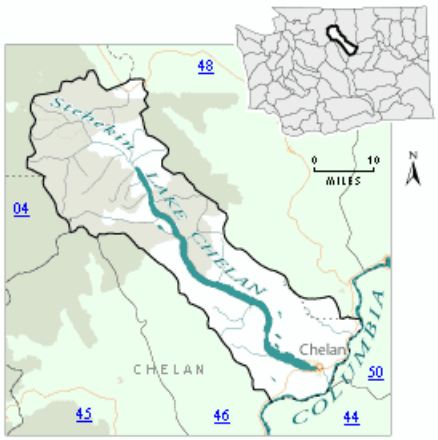
Domestic Water Supply
No significant use of surface water sources

Salmonid Stock Status
Impaired

3. Water Quality Programs

1. Instream flows of Columbia River under 173-563 WAC, Ecology
2. U.S. Forest Service Northwest Forest Plan
3. Entiat Valley Watershed Plan
4. Instream Flow Incremental Methodology, Chelan CD
5. Ecosystem Diagnosis & Treatment Program, Chelan CD
6. Entiat Demonstration Project, Chelan CD
7. Environmental Quality Incentive Program, Chelan CD
8. Conservation Commission Implementation Grant, Chelan CD
9. On-Site Program, Chelan-Douglas County Health

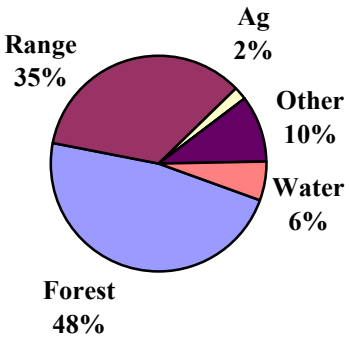
Chelan Basin - WRIA #47



WRIA #47 drains nearly 670,111 acres, including Lake Chelan. Located within the Cascades and Columbia Basin ecoregions, this watershed averages 52 inches of rain per year.

Demographics

Land use in the Chelan Basin



Land Base (in acres)

Federal	546,205	81.5%
State	13,180	2.0%
Local	-0-	
Tribal	-0-	
Private	110,726	16.5%

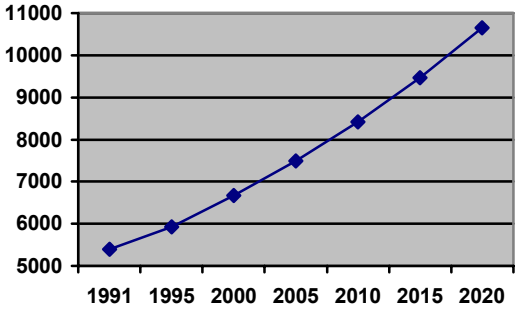
Principal Economic Activity (as total wages)

Agriculture	23%
Retail Trade	17%
Services	18%
Government	17%
Other	25%

Population

There are approximately 6,927 people living in the Chelan Basin. The primary population centers are Chelan and Manson. The majority of people live in unincorporated areas.

Projected population trends



Counties

Chelan (98%)
Okanogan (2%)

Special purpose districts

Conservation Districts: Chelan County; Okanogan

Irrigation Districts: Chelan River; Isenhart; Lake Chelan Reclamation District; Chelan Falls

Principal Cities

Chelan
Lucerne
Stehekin
Manson
Holden

Reservation Lands

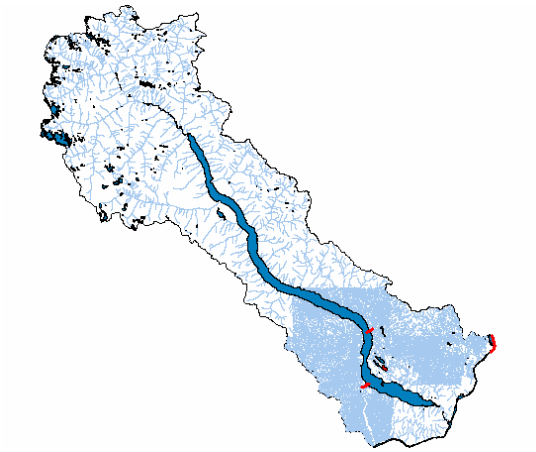
Wapato Pt.

General Landscape

Steep, glaciated, mountains, ridges, and U-shaped valleys with high gradient streams and rivers. Typical soils include deep loams: silt loam, sandy loam, gravelly loam, and cindery sandy loam. Potential natural vegetation is ponderosa pine, Douglas fir, grand fir, and pine grass. Mean temperature ranges from 16/32° (winter) to 48/78° (summer).

SurfaceWater Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

High Temperature in Columbia River

Dissolved Oxygen in First Creek

pH in Mitchell Creek

Pesticides in Lake Chelan and Lake Roses

PCBs in Lake Chelan

Total Dissolved Gas in Columbia River

Total Maximum Daily Loads

2 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected > 5 mg/L
Pesticides – Have not been detected in public wells.

Sole Source Aquifer

None

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

Within this WRIA are large community water systems that significantly utilize surface water sources.

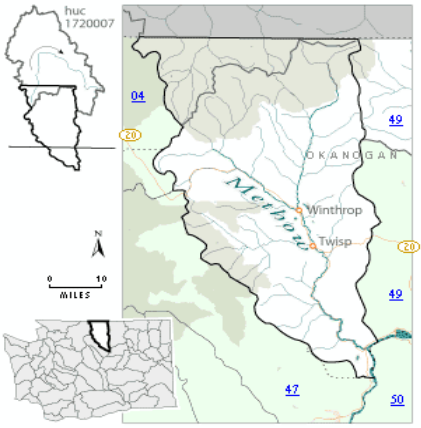
Salmonid Stock Status

Healthy

3. Water Quality Programs

1. TMDLs for Lake Chelan
2. TMDL for Roses Lake
3. Lake Chelan Water Quality Plan, Chelan County PUD #1
4. Lake Chelan Phosphorus Monitoring, Chelan County
5. Instream flows for the Columbia River under 173-563 WAC
6. Lake Chelan Phosphorus TMDL
7. Lake Chelan Water Quality Management Committee
8. US Forest Service Northwest Forest Plan

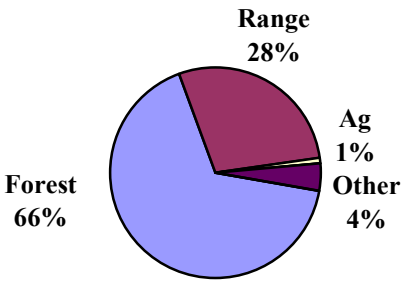
Methow Basin - WRIA #48



WRIA #48 encompasses nearly 1,357,656 acres in the Columbia Basin and Cascades ecoregion. This watershed receives about 31 inches of rainfall per year.

Demographics

Land use in the Methow Basin



Land Base (in acres)

Federal	1,163,948	85.7%
State	56,322	4.2%
Local	-0-	
Tribal	-0-	
Private	137,386	10.1%

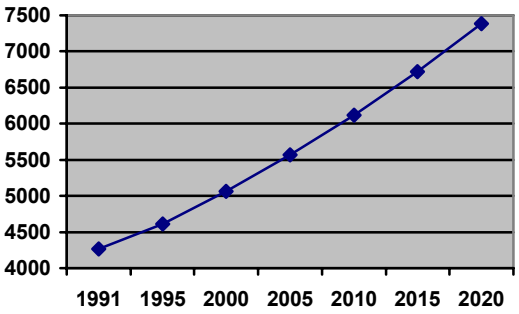
Principal Economic Activity (as total wages)

Agriculture/Forestry	30%
Retail Trade	16%
Services	15%
Government	21%
Other	18%

Population

There are approximately 5,008 people living in the Methow Basin. The primary population centers are Twisp and Winthrop.

Projected population trends



Counties

Okanogan (100%)

Special purpose districts

Conservation Districts: Okanogan

Irrigation Districts: Methow-Okanogan; Methow Valley; Pateros; Wolf Creek Reclamation

Principal Cities

Twisp	Pateros
Winthrop	Methow
Carlton	Mazama

Reservation Lands

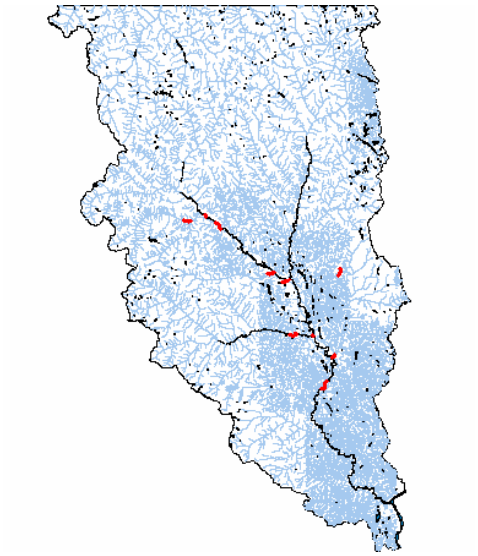
None

General Landscape

High, glaciated ridges, plateaus, and U-shaped valleys with numerous wetlands. Permanent and intermittent streams are high gradient. Soils are typically fine sandy loam to stony coarse sandy loam. Potential natural vegetation is shrub alpine meadow, mixed sub-alpine fir, with some Douglas fir at lower elevations. Temperature ranges from 13/27° (winter) to 45/70° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

High Temperature in Methow River and Twisp River

Low Instream Flow in Beaver Creek, Chewack River, Early Winters Creek, Methow River, Twisp River, and Wolf Creek

Total Maximum Daily Loads

2 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels not detected above 5 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer

None

Water Quantity

Over appropriated; low growth

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

No significant use of surface water sources

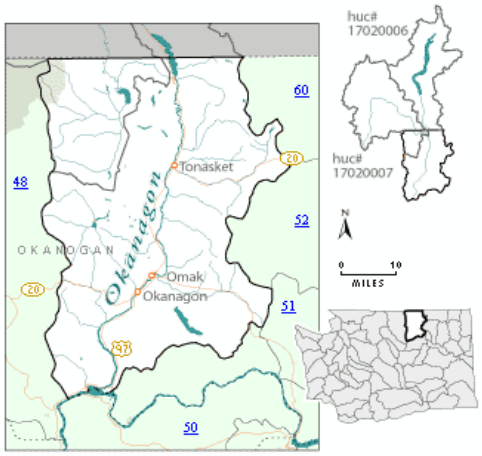
Salmonid Stock Status

Threatened

3. Water Quality Programs

1. Facility plan for the Mazama core and upper Methow area, Okanogan County Water Resources Department
2. Methow Groundwater Management Area, Okanogan County Water Resourses Department
3. 2514 Watershed Planning, Okanogan County Water Resizes Department
4. Multi-objective River Corridor Plan for Methow Basin, Okanogan County Water Resizes Department
5. Twisp River Watershed Analysis, USFS
6. Libby Watershed Analysis, USFS
7. Middle Methow Watershed Analysis, USFS
8. Early Winters Creek Watershed Analysis, USFS
9. Lost River and Robinson Creek Watershed Analysis, USFS
10. Chewack River Watershed Analysis, USFS
11. Okanogan County Septic Education Project, Okanogan County Health
12. Irrigation Water Management Program, Okanogan CD
13. Conservation Reserve Enhancement Program (CREP) , Okanogan CD

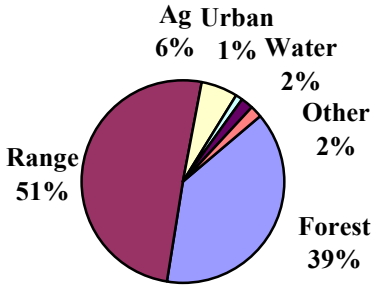
Okanogan Basin - WRIA #49



WRIA #49 drains about 1,344,550 acres. This watershed is within the Columbia Basin, Cascades, and Northern Rockies. Average rainfall is 15 inches per year.

Demographics

Land use in the Okanogan Basin



Land Base (in acres)

Federal	232,252	17.3%
State	273,374	20.3%
Local	-0-	
Tribal	279,506	20.8%
Private	559,418	41.6%

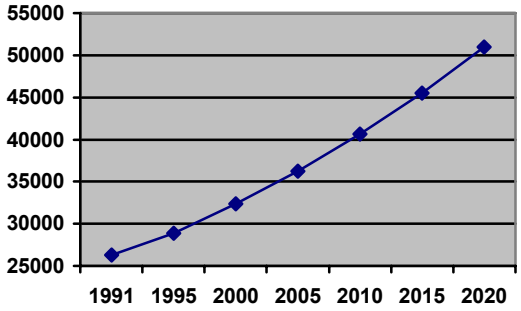
Principal Economic Activity (as total wages)

Agriculture/Forestry	30%
Retail Trade	16%
Services	15%
Government	21%
Other	18%

Population

There are approximately 32,855 people living in the Okanogan Basin. The primary population centers are Omak and Okanogan. The majority of people live in unincorporated areas.

Projected population trends



Counties

Okanogan (100%)

Special purpose districts

Conservation Districts: Okanogan

Irrigation Districts: Aenas Lake; Alta Vista; Helensdale Reclamation; Methow-Okanogan; Okanogan; Oroville-Tonasket; and Whitestone Reclamation

Principal Cities

Omak	Okanogan
Brewster	Oroville

Reservation Lands

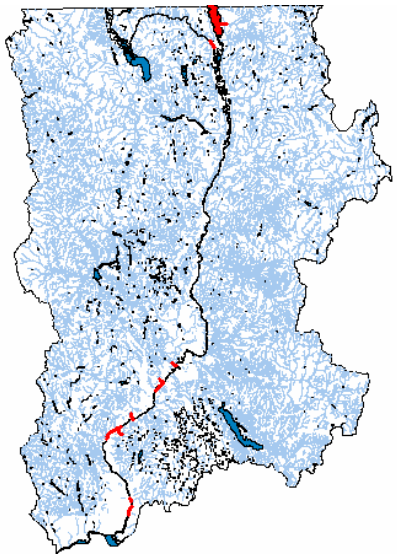
Colville Confederated Tribes

General Landscape

High, glaciated ridges, plateaus, and U-shaped valleys with numerous wetlands. Permanent and intermittent streams are high gradient. Soils are typically fine sandy loam to stony coarse sandy loam. Potential natural vegetation is shrub alpine meadow, mixed sub-alpine fir, with some Douglas fir at lower elevations. Temperature ranges from 13/27° (winter) to 45/70° (summer).

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Okanogan River

High Temperature in Okanogan River and Similkameen River

Dissolved Oxygen in Okanogan River

Pesticides in Ninemile Creek, Okanogan River, Osoyoos Lake, Similkameen River, Tallant Creek, and Unnamed Creek

PCBs in Okanogan River

Low Instream Flow in Salmon Creek

Total Maximum Daily Loads

3 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected > 10 mg/L
Pesticides – Have not been detected in public wells.

Sole Source Aquifer

None

Water Quantity

Over appropriated; low growth

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

No significant use of surface water sources

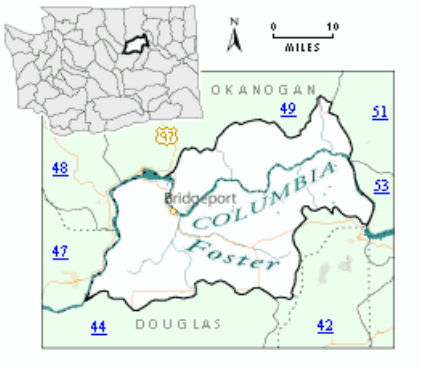
Salmonid Stock Status

Healthy

3. Water Quality Programs

1. TMDL for Okanagon River
2. TMDL for Similkameen River
3. Okanogan River Water Quality Management Plan, Okanogan County Water Resources Department
4. Salmon Creek Fish Enhancement
5. Omak Creek Planning Report, 1994
6. Tonasket Creek Watershed Assessment, USFS
7. Bonaparte Creek Watershed Assessment, USFS
8. Okanogan County Septic Education, Okanogan County Health
9. Water Quality Monitoring Program, Okanogan CD
10. Irrigation Water Management Program, Okanogan CD
11. Conservation Reserve Enhancement Program, Okanogan CD

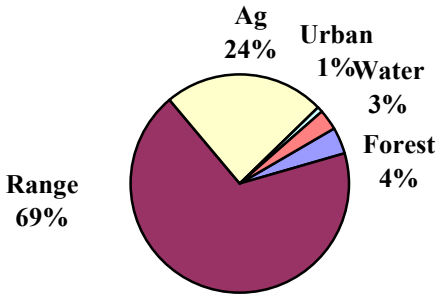
Foster Basin - WRIA #50



WRIA #50 encompasses about 578,182 acres. Located within the Columbia Basin and Northern Rockies ecoregion, this watershed receives 10 inches of rain a year.

Demographics

Land use in the Foster Basin



Land Base (in acres)

Federal	10,410	1.8%
State	60,136	10.4%
Local	-0-	
Tribal	152,382	26.4%
Private	355,254	61.4%

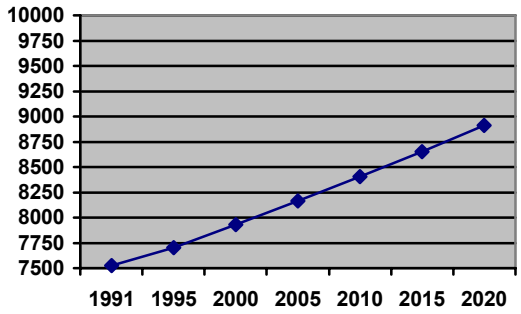
Principal Economic Activity (as total wages)

Agriculture	35%
Retail Trade	18%
Government	19%
Services	12%
Other	16%

Population

There are approximately 7,703 people living in the Foster Basin. The primary population centers are Bridgeport and Mansfield.

Projected population trends



Counties

Douglas (74%)
Okanogan (26%)

Special purpose districts

Conservation Districts: Okanogan; Foster Creek

Irrigation Districts: Bridgeport #1; Bridgeport Bar; Brewster Flat; Pateros

Principal Cities

Bridgeport
Mansfield

Reservation Lands

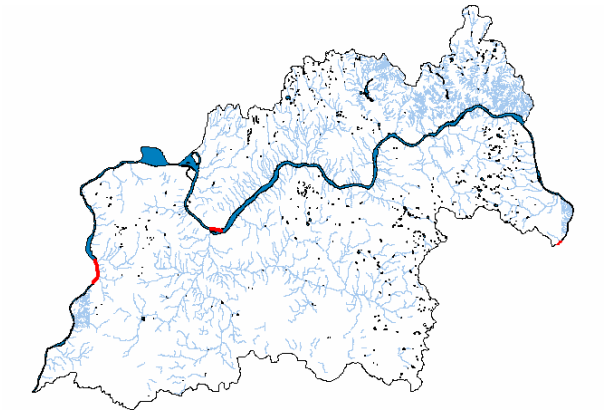
Colville Confederated Tribes

General Landscape

This valley was impacted by the melting of the Okanogan lobe of the Wisconsin Glacier. As the glacier melted, it retreated up the valley leaving behind a blanket of glacial till. Up to 50 feet thick, the till is composed of clay, silt, sand, gravel, cobbles, and boulders. This soil supports native vegetation composed of big sagebrush, bluebunch wheatgrass, three-tip sage, and Idaho fescue.

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Total Dissolved Gas in Columbia River

Total Maximum Daily Loads
1 TMDL required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality
Nitrates – Levels detected > 10 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer
None

Water Quantity
No Concerns

Air Quality
Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health
Commercial Shellfish Growing Areas
None

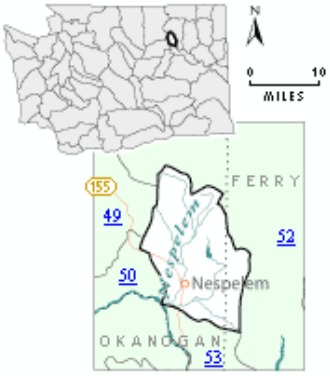
Domestic Water Supply
No significant use of surface water sources

Salmonid Stock Status
Healthy

3. Water Quality Programs

1. Watershed Planning under 2514 WAC
2. Wellhead Protection Phase 1 Study, Douglas County
3. East Foster Creek Water Quality Project, Foster CD
4. Douglas County Watershed Plan Phase II, Foster CD
5. On-site Sewage Program, Chelan-Douglas County Health

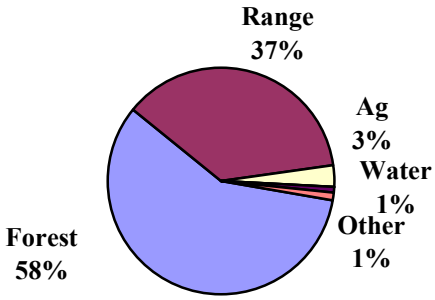
Nespelem Basin - WRIA #51



WRIA #51 encompasses about 144,643 acres. This watershed is located within the Columbia Basin and Northern Rockies ecoregions. Average rainfall is 10 inches per year,

Demographics

Land use in the Nespelem Basin



Land Base (in acres)

Federal	-0-	
State	-0-	
Local	-0-	
Tribal	144,542	99.9%
Private	101	.1%

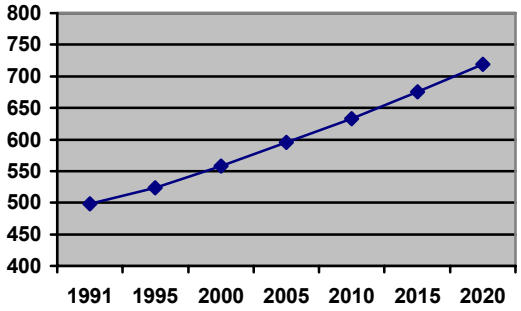
Principal Economic Activity (as total wages)

Agriculture/Forestry	30%
Retail	16%
Services	15%
Government	21%
Other	18%

Population

There are approximately 554 people living in the Nespelem Basin. The primary population center is Nespelem. The majority of people live in unincorporated areas.

Projected population trends



Counties

Okanogan (85%)
Ferry (15%)

Special purpose districts

Conservation Districts: Okanogan; Ferry

Principal Cities

Nespelem
Colville Indian Agency

Reservation Lands

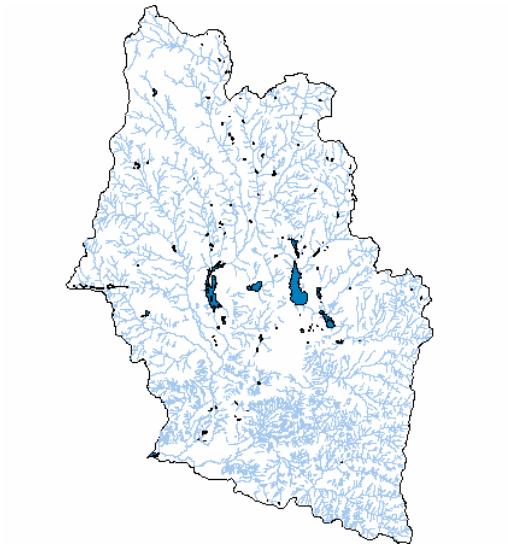
Colville Confederated Tribes

General Landscape

This valley was impacted by the melting of the Okanogan lobe of the Wisconsin Glacier. As the glacier melted, it retreated up the valley leaving behind a blanket of glacial till. Up to 50 feet thick, the till is composed of clay, silt, sand, gravel, cobbles, and boulders. This soil supports native vegetation composed of big sagebrush, bluebunch wheatgrass, three-tip sage, and Idaho fescue.

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

none

Total Maximum Daily Loads
0 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality
Nitrates – Levels not detected above 5 mg/L
Pesticides – Have not been detected in public wells.

Sole Source Aquifer
None

Water Quantity
No Concerns

Air Quality
Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health
Commercial Shellfish Growing Areas
None

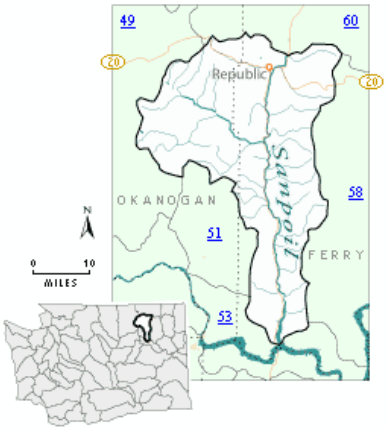
Domestic Water Supply
No significant use of surface water sources

Salmonid Stock Status
All Anadromous Extinct
Resident Healthy

3. Water Quality Programs

None

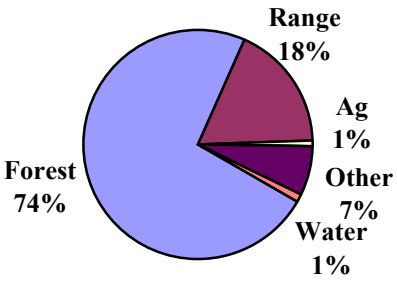
Sanpoil Basin - WRIA #52



WRIA #52 encompasses about 628,128 acres. It is located within the Northern Rockies and Columbia Basin ecoregions. This watershed receives nearly 16 inches of rainfall per year.

Demographics

Land use in the Sanpoil Basin



Land Base (in acres)

Federal	185,652	29.6%
State	15,450	2.5%
Local	-0-	
Tribal	332,476	52.9%
Private	94,550	15.0%

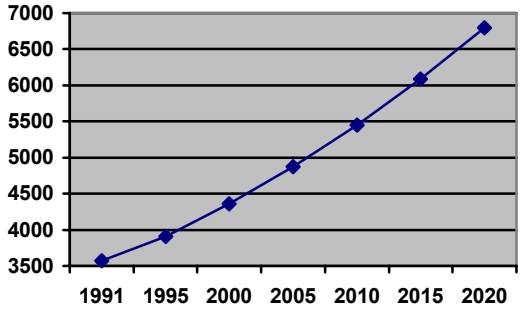
Principal Economic Activity (as total wages)

Manufacturing	12%
Retail Trade	13%
Services	14%
Government	39%
Agriculture/Forestry	3%

Population

There are approximately 4,404 people living in the Sanpoil Basin. The primary population center is Republic. The majority of people live in unincorporated areas.

Projected population trends



Counties

Ferry (67%)
Okanogan (33%)

Special purpose districts

Conservation Districts: Ferry; Okanogan

Principal Cities

Republic
Keller

Reservation Lands

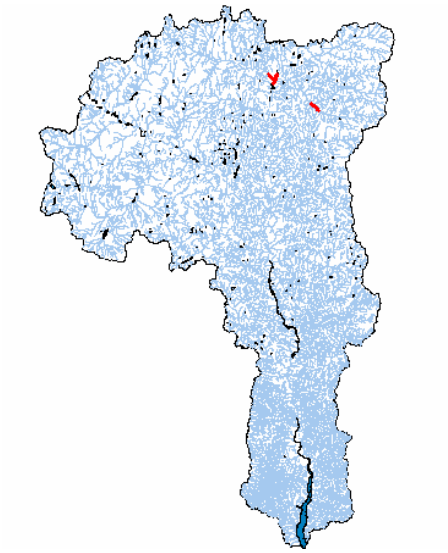
Colville Confederated Tribes

General Landscape

Rugged, high mountains are the dominant feature of this region. Elevations are generally 1,300 to 8,00 feet. Mountains have sharply-crested ridges and steep slopes cut by steep walled narrow stream valleys. Soils are derived from acidic rock. Potential natural vegetation includes western white pine, lodgepole pine, western red cedar, Douglas fir, wheatgrass, fescue, and needlegrass.

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Dissolved Oxygen in Granite Creek and Sanpoil River

pH in O'Brien Creek

Total Maximum Daily Loads
1 TMDL required from the 1998 303(d) list

Groundwater Quality
Nitrates – Levels not detected above 5 mg/L
Pesticides – Have not been detected in public wells.

Sole Source Aquifer
None

Water Quantity
No Concerns

Air Quality
Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health

Commercial Shellfish Growing Areas
None

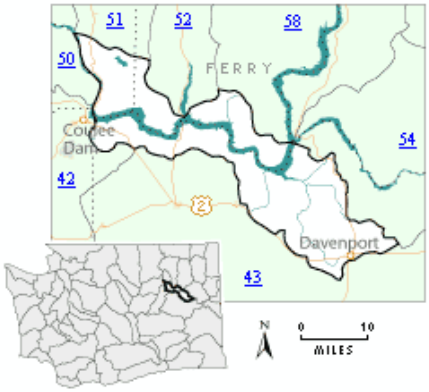
Domestic Water Supply
No significant use of surface water sources

Salmonid Stock Status
All Anadromous Extinct
Resident Healthy

3. Water Quality Programs

1. Ferry Lakes Invaders Project, Ferry CD
2. Sanpoil Basin Hydrogeology Study, City of Republic
3. Onsite Sewage Education Program, Northeast Tri-Counties Health

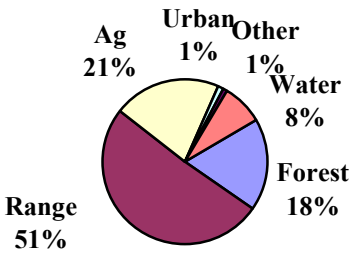
Lower Lake Roosevelt Basin - WRIA #53



WRIA #53 encompasses about 326,198 acres. This watershed is part of the Columbia Basin and Northern Rockies ecoregions. Average annual rainfall is 11 inches.

Demographics

Land use in the Lower Lake Roosevelt



Land Base (in acres)

Federal	8,781	2.7%
State	9,525	2.9%
Local	-0-	
Tribal	114,800	35.2%
Private	193,092	59.2%

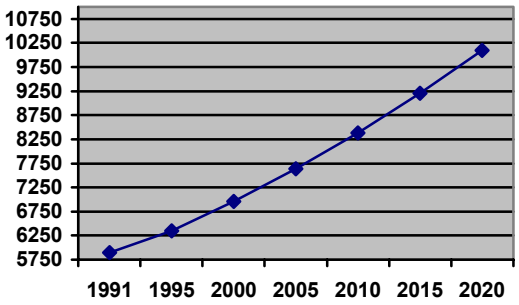
Principal Economic Activity (as total wages)

Agriculture/Forestry	11%
Retail Trade	14%
Services	14%
Government	43%
Other	18%

Population

There are approximately 6,848 people living in the Lower Lake Roosevelt Basin. The primary population centers are Davenport and Coulee Dam. The majority of people live in unincorporated areas.

Projected population trends



Counties

Lincoln (63%) Ferry (23%)
Okanogan (14%) Grant (<1%)

Special purpose districts

Conservation Districts: Lincoln; Ferry; Okanogan

Principal Cities

Davenport	Coulee Dam
Elmer City	Belvedere
Seatons Grove	Kootzville
Lone Pine	Lincoln

Reservation Lands

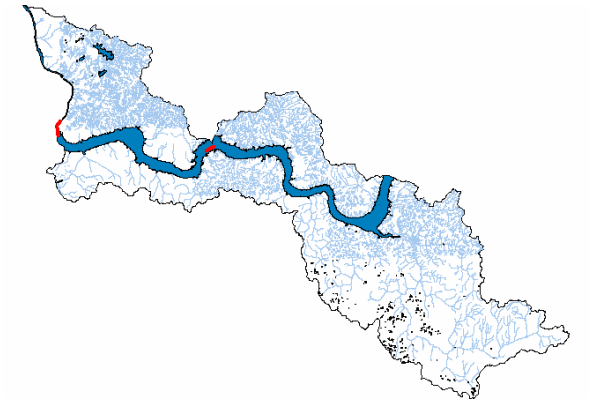
Colville Confederated Tribes

General Landscape

The scablands and loess islands were formed as immense floods periodically broke through the ice dams blocking glacial Lake Missoula during the Pleistocene. Soils are typically deep loess on hills and foothills. Potential natural vegetation is ponderosa pine, bluebunch wheatgrass, and Idaho fescue.

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

High Temperature in Franklin D. Roosevelt Lake

Dissolved Oxygen in Franklin D. Roosevelt Lake

Sediment Bioassay in Franklin D. Roosevelt Lake

Total Dissolved Gas in Columbia River

Total Maximum Daily Loads

3 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected > 5 mg/L
Pesticides – Have not been detected in public wells.

Sole Source Aquifer

None

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

No significant use of surface water sources

Salmonid Stock Status

All Anadromous Extinct
Resident Healthy

3. Water Quality Programs

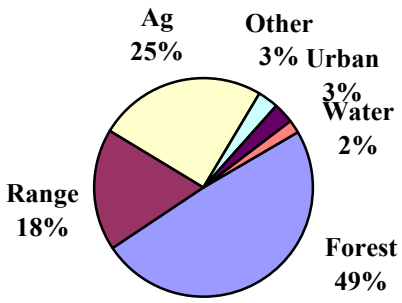
1. Transboundary Gas Group working on dissolved gas in Columbia River system
2. Agricultural BMP Education Project, Lincoln CD
3. On-site Sewage System Technical Assistance, Lincoln/Northeast Tri-Counties Health
4. Water Quality Implementation Program, Lincoln CD

Lower Spokane Basin - WRIA #54

WRIA #54 encompasses about 568,799 acres. This watershed is located within the Northern Rockies and Columbia Basin ecoregion. Average annual rainfall is 14 inches per year.

Demographics

Land use in the Lower Spokane



Land Base (in acres)

Federal	8,061	1.5%
State	37,205	6.5%
Local	671	.1%
Tribal	142,910	25.1%
Private	379,952	66.8%

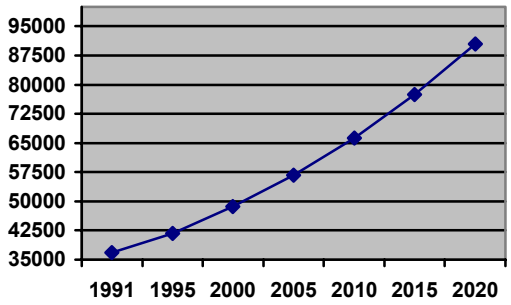
Principal Economic Activity (as total wages)

Agriculture/Forestry	1%
Manufacturing	14%
Retail Trade	18%
Services	27%
Government	19%
Other	21%

Population

There are approximately 49,670 people living in the Lower Spokane Basin. The primary population centers are Spokane and Medical Lake. The majority of people live in unincorporated areas.

Projected population trends



Counties

Stevens (49%) Spokane (28%)
Lincoln (23%)

Special purpose districts

Conservation Districts: Stevens County; Spokane County; Lincoln County

Principal Cities

Spokane	Medical Lake
Airway Heights	Wellpinit
Ford	Reardan

Reservation Lands

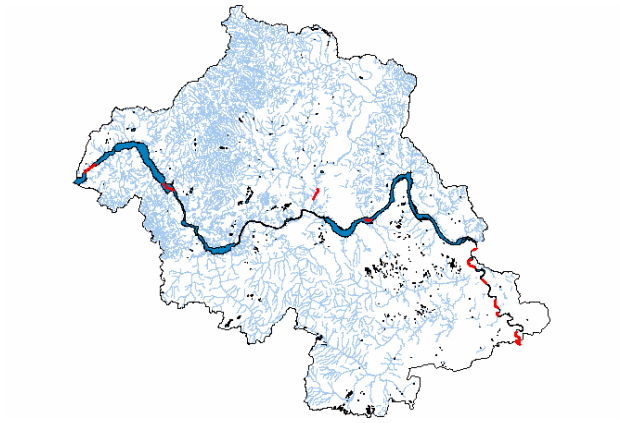
Spokane Tribe

General Landscape

The scablands and loess islands were formed as immense floods periodically broke through the ice dams blocking glacial Lake Missoula during the Pleistocene. Soils are typically deep loess on hills and foothills. Potential natural vegetation is ponderosa pine, serviceberry, bluebunch wheatgrass, and Idaho fescue.

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

High Temperature in Chamokane Creek and Spokane River

pH in Spokane River

Metals in Spokane River

Nutrients in Spokane River

PCBs in Long Lake and Spokane River

Sediment Bioassay in Spokane River

Total Maximum Daily Loads

4 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected > 10 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer

Spokane Valley Rathdrum Prairie Aquifer

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

No significant use of surface water sources

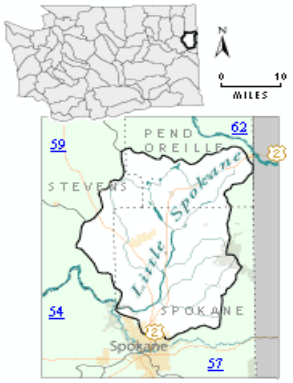
Salmonid Stock Status

All Anadromous Extinct; Resident Healthy

3. Water Quality Programs

1. TMDLs for Spokane River
2. TMDL for Long Lake
3. Stormwater Management Plan and Implementation, City of Spokane
4. Spokane-Rathdrum Prairie Aquifer Protection Program, City of Spokane/Spokane County Utilities/Water Quality Management Program
5. Water Quality Education and Public Involvement, Spokane County Public Works/Utilities/Water Quality Management Program
6. Sustainable Landscaping Project, Spokane County Cooperative Extension
7. On-site System Education, Spokane County Health
8. Riparian Buffer Cost Share Program, Spokane CD
9. Wellhead Protection Program, Spokane Regional Health/City of Spokane/Spokane Aquifer Joint Board
10. Site Hazard Assessment, Spokane Regional Health
11. Environmental Health Education, Spokane County Health
12. Aquifer Protection Program, Spokane Regional Health

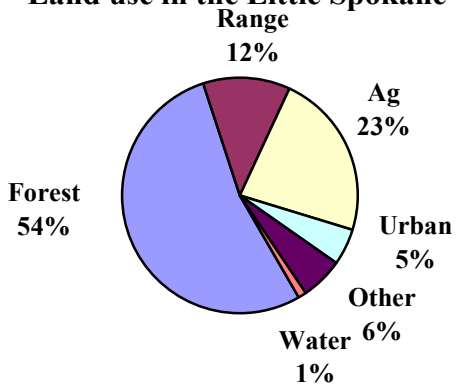
Little Spokane Basin - WRIA #55



WRIA #55 encompasses about 431,826 acres within the Northern Cascades and Columbia Basin ecoregions. This watershed averages 21 inches of rainfall per year.

Demographics

Land use in the Little Spokane



Land Base (in acres)

Federal	2,442	.6%
State	20,102	4.7%
Local	1,449	.3%
Tribal	-0-	
Private	407,833	94.4%

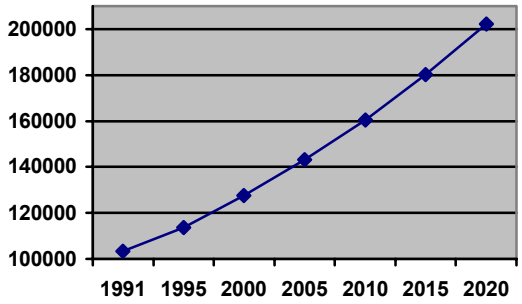
Principal Economic Activity (as total wages)

Manufacturing	14%
Retail Trade	18%
Services	27%
Government	19%
Other	22%

Population

There are approximately 125,575 people living in the Little Spokane Basin. The primary population centers are Deer Park and Mead. The majority of people live in unincorporated areas.

Projected population trends



Counties

Spokane (62%) Pend Oreille (25%)
Stevens (13%)

Special purpose districts

Conservation Districts: Spokane County; Pend Oreille; Stevens County

Irrigation Districts: North Spokane #8

Principal Cities

Deer Park	Mead
Colbert	Clayton
Elk	Chatteroy

Reservation Lands

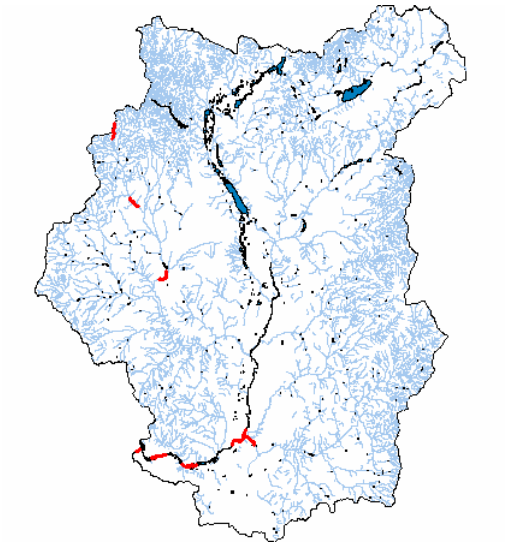
None

General Landscape

High mountains are the dominant feature of this region. Elevations range from 1,300 to 6,000 feet. Mountains have sharply-crested ridges and steep slopes cut by steep walled narrow stream valleys. Soils are derived from basic rock. Potential natural vegetation includes western white pine, lodgepole pine, western red cedar, Douglas fir, wheatgrass, fescue, and needlegrass.

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Dragoon Creek and Little Spokane River

High Temperature in Deadman Creek and Little Spokane River

Dissolved Oxygen in Dragoon Creek

pH in Deadman Creek and Little Spokane River

Low Instream Flow for the Little Spokane River

PCBs in Little Spokane River

Total Maximum Daily Loads

3 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected > 10 mg/L
Pesticides – Have been detected in public wells

Sole Source Aquifer

Spokane Valley Rathdrum Prairie Aquifer

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

No significant use of surface water sources

Salmonid Stock Status

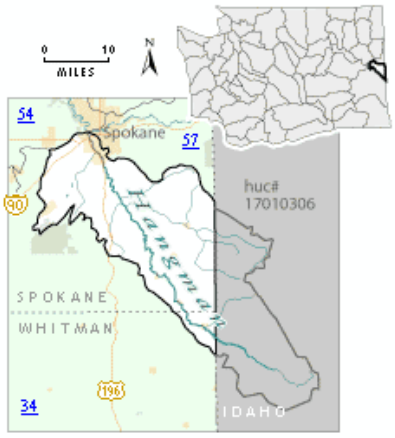
All Anadromous Extinct
Resident Healthy

3. Water Quality Programs

1. TMDLs for Spokane River
2. TMDL for Dragoon Creek
3. Instream flows set in accordance with 173-555 WAC, Ecology
4. Watershed Initial Assessment completed in 1995
5. Wellhead Protection Program, Phase 1, City of Spokane
6. Spokane-Rathdrum Prairie Aquifer Protection, City of Spokane
7. Deer Park Ground Water Management Area, Spokane County Public Works/Utilities/Water Quality Management Program
8. On-site Sewage System Education Program, Spokane/Northeast Tri-Counties Health
9. Pend Oreille Water Festival, Pend Oreille CD
10. DOE Power Grant Program, Pend Oreille CD
11. Salmon Recovery Program, Pend Oreille CD
12. Dragoon Creek Riparian Buffer Project, Spokane CD
13. Little Spokane Watershed Management Plan, Spokane CD/Pend Oreille CD
14. Wellhead Protection Program, Spokane Regional Health
15. Environmental Health Education, Spokane Regional Health
16. Aquifer Protection Program, Spokane Regional Health

17. Spokane Valley – Rathdrum Prairie Aquifer Protection Program, Spokane County Utilities/Water Quality Management Program
18. Water Quality Education & Public Involvement, Spokane County Public Works/Utilities/Water Quality Management Program
19. Watershed Planning Program, Spokane County Public Works/Utilities/Water Quality Management Program
20. US Geologic Survey NAWQA (study of the basin), USGS

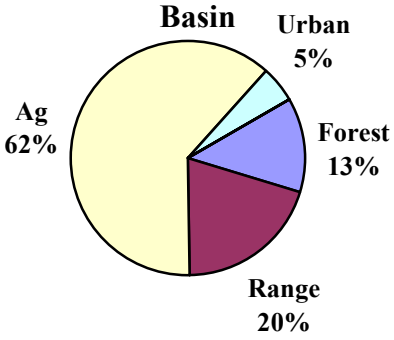
Hangman Basin - WRIA #56



WRIA #56 encompasses about 289,833 acres. Located within the Columbia Basin ecoregion, this watershed receives an average annual rainfall of 18 inches.

Demographics

Land use in the Hangman Basin



Land Base (in acres)

Federal	1,921	.7%
State	2,995	1.0%
Local	721	.3%
Tribal	-0-	
Private	284,196	98.0%

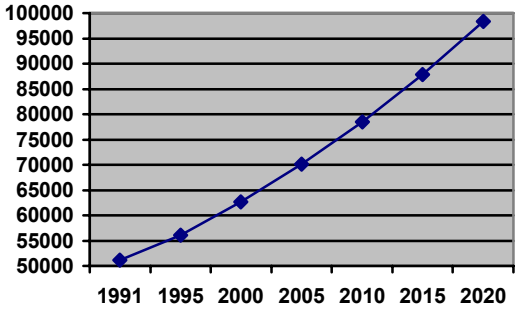
Principal Economic Activity (as total wages)

Manufacturing	12%
Retail Trade	20%
Services	29%
Government	16%
Other	23%

Population

There are approximately 63,035 people living in the Hangman Basin. The primary population centers are Spokane and Cheney. The majority of people live in unincorporated areas.

Projected population trends



Counties

Spokane (95%)
Whitman (5%)

Special purpose districts

Conservation Districts: Spokane County; Pine Creek

Principal Cities

Spokane	Cheney
Tekoa	Rockford
Fairfield	Spangle

Reservation Lands

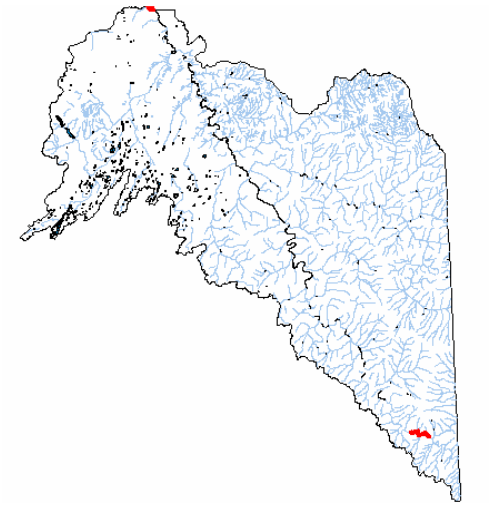
None

General Landscape

This basin was impacted by the immense floods from glacial Lake Missoula that periodically broke through the ice dam. The floods scoured the loess covering the plateau. Potential natural vegetation on these loess islands include big sagebrush, three-tip, bluebunch wheatgrass and Idaho fescue.

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Hangman Creek

High Temperature in Hangman Creek

Dissolved Oxygen in Hangman Creek

pH in Hangman Creek

Total Maximum Daily Loads

1 TMDL required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected > 10 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer

Spokane Valley Rathdrum Prairie Aquifer

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

No significant use of surface water sources

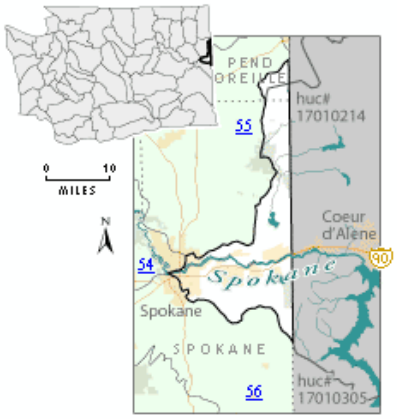
Salmonid Stock Status

All Anadromous Extinct
Resident healthy

3. Water Quality Programs

1. TMDLs for Spokane River
2. TMDL for Hangman Creek
3. Hangman Creek Flood Hazard Management Plan, Spokane CD
4. Hangman Creek Watershed Implementation, Spokane CD
5. ESHB2514 Watershed Planning Program, Spokane CD
6. Rattler Rum Implementation Project, Spokane CD
7. Spokane Valley-Rathdrum Prairie Aquifer Protection, City of Spokane/Spokane County Public Works/Utilities/Water Quality Management Program
8. Water Quality Public Education and Involvement, Spokane County Public Works/Utilities/Water Quality Management Program
9. On-site System Education, Spokane Regional Health
10. Wellhead Protection Program, Spokane Regional Health/City of Spokane
11. Environmental Health Education, Spokane County Health
12. Aquifer Protection Program, Spokane County Health
13. Water Quality Technical Assistance Program, Pine Creek CD
14. Water Quality Education Program, Pine Creek CD
15. Watershed Planning Program, Spokane CD

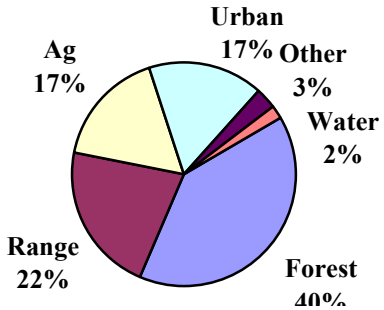
Middle Spokane Basin - WRIA #57



WRIA #57 encompasses about 183,274 acres. This small watershed is located within the Columbia Basin and Northern Rockies ecoregions. Average annual rainfall is 22 inches per year.

Demographics

Land use in the Middle Spokane Basin



Land Base (in acres)

Federal	-0-	-0-
State	12,247	6.7%
Local	3,621	2.0%
Tribal	-0-	-0-
Private	167,406	91.3%

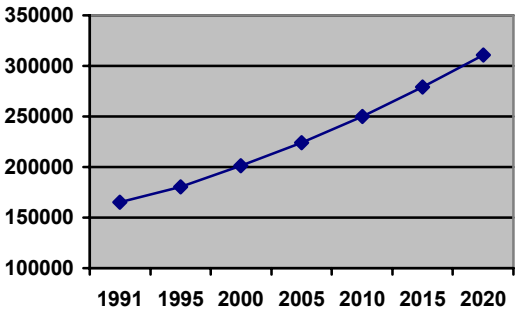
Principal Economic Activity (as total wages)

Manufacturing	12%
Retail Trade	20%
Services	29%
Government	16%
Other	23%

Population

There are approximately 198,526 people living in the Middle Spokane Basin. The primary population center is Spokane.

Projected population trends



Counties

Spokane (93%)
Pend Oreille (7%)

Special purpose districts

Conservation Districts: Spokane County; Pend Oreille

Irrigation Districts: Carnhope #7; Consolidated #19; Hutchinson #16; Moab #20; Model #8; Orchard Ave. #6; Pasadena Park #17; Trentwood #3; Vera #15

Principal Cities

Spokane	Millwood
Trentwood	Chester
Opportunity	Greenacres

Reservation Lands

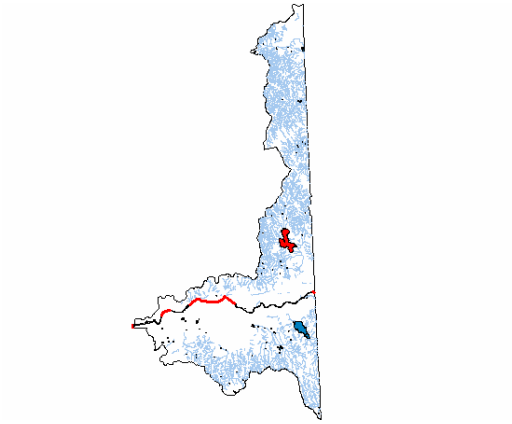
None

General Landscape

This basin was impacted by the immense floods from glacial Lake Missoula that periodically broke through the ice dam. The floods scoured the loess covering the plateau. Potential natural vegetation on these loess islands include big sagebrush, three-tip, bluebunch wheatgrass and Idaho fescue.

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Dissolved oxygen in Spokane River

Metals in Spokane River

Nutrients in Newman Lake

PCBs in Spokane River

Sediment Bioassay in Spokane River

Arsenic in Spokane River

Total Maximum Daily Loads

3 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels detected >10 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer

Spokane Valley Rathdrum Prairie Aquifer

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

No significant use of surface water sources

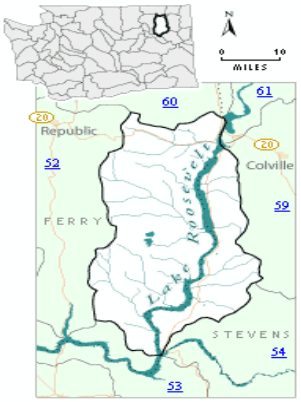
Salmonid Stock Status

All Anadromous Extinct
Resident Healthy

3. Water Quality Programs

1. TMDLs for Spokane River
2. TMDL for Liberty Lake
3. Spokane Valley-Rathdrum Prairie Aquifer Protection, Spokane County Public Works/Utilities/Water Quality Management Program
4. Septic Tank Elimination Project, City of Spokane
5. Spokane River Phosphorus Management Plan
6. U.S. Geologic Survey NAWQA study of the basin, USGS
7. Riparian Buffer Cost Share Program, Spokane CD
8. Watershed Planning Program, Spokane County Public Works/Utilities/Water Quality Management Program
9. Onsite Sewage Education Program, Spokane Regional Health
10. Wellhead Protection Program, Spokane Regional Health
11. Environmental Health Education, Spokane Regional Health
12. Aquifer Protection Program, Spokane Regional Health
13. Water Quality Education & Public Involvement, Spokane County Public Works/Utilities/Water Quality Management Program

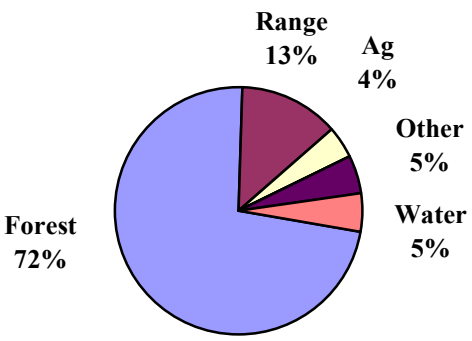
Middle Lake Roosevelt Basin - WRIA 58



WRIA #58 encompasses about 702,800 acres of Northern Rockies and Columbia Basin ecoregions. This watershed receives an average annual rainfall of 18 inches per year.

Demographics

Land use in the Middle Lake Roosevelt



Land Base (in acres)

Federal	122,147	17.4%
State	25,672	3.7%
Local	-0-	-0-
Tribal	378,678	53.8%
Private	176,303	25.1%

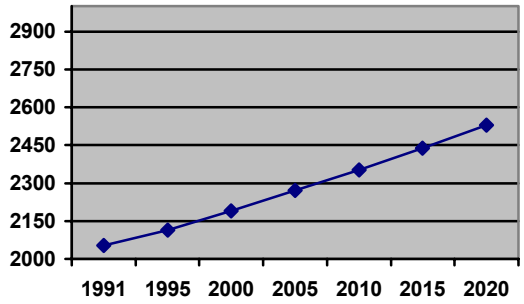
Principal Economic Activity (as total wages)

Manufacturing	12%
Retail Trade	13%
Services	14%
Government	39%
Agriculture/Forestry	3%

Population

There are approximately 2,113 people living in the Middle Lake Roosevelt Basin. The primary population centers are Fruitland and Cedonia. The majority of people live in unincorporated areas.

Projected population trends



Counties

Ferry (72%)
Stevens (28%)

Special purpose districts

Conservation Districts: Stevens County; Ferry

Principal Cities

Fruitland	Hunters
Cedonia	Kewa
Inchellum	Gifford

Reservation Lands

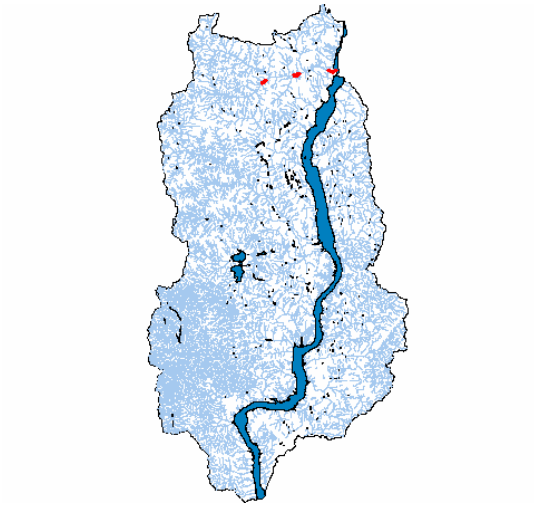
Colville Confederated Tribes
Spokane Tribe

General Landscape

Rugged, high mountains are the dominant feature of this region. Elevations are generally 1,300 to 8,00 feet. Mountains have sharply-crested ridges and steep slopes cut by steep walled narrow stream valleys. Soils are derived from acidic rock. Potential natural vegetation includes western white pine, lodgepole pine, western red cedar, Douglas fir, wheatgrass, fescue, and needlegrass.

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

High Temperature in Sherman Creek

Mercury in Franklin D. Roosevelt Lake

Sediment bioassay in Franklin D. Roosevelt Lake

Total Maximum Daily Loads
2 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality
Nitrates – Levels not detected above 5 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer
None

Water Quantity
No Concerns

Air Quality
Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health
Commercial Shellfish Growing Areas
None

Domestic Water Supply
No significant use of surface water sources

Salmonid Stock Status
All Anadromous Extinct
Resident Healthy

3. Water Quality Programs

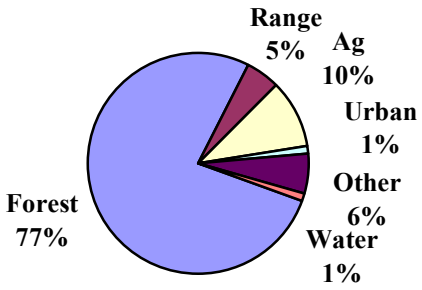
1. Phase II lake restoration for Twin Lakes
2. U.S. Forest Service and Ferry Conservation District, solutions to temperature problems in Sherman Creek
3. Onsite Sewage Education Program, Northeast Tri-Counties Health

Colville Basin - WRIA #59

WRIA #59 drains about 650,482 acres. This watershed is part of the Northern Rockies ecoregion. Average annual rainfall is 18 inches per year in the valley bottom, and 36 in the higher elevations.

Demographics

Land use in the Colville Basin



Land Base (in acres)

Federal	158,247	24.3%
State	75,845	11.7%
Local	-0-	-0-
Tribal	-0-	-0-
Private	416,390	64.0%

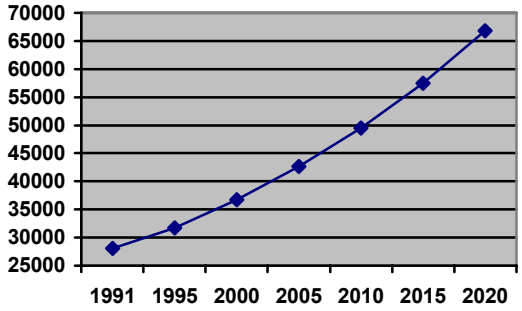
Principal Economic Activity (as total wages)

Agriculture/Forestry	2%
Manufacturing	21%
Retail Trade	17%
Services	24%
Government	25%
Other	11%

Population

There are approximately 36,668 people living in the Colville Basin. The primary population centers are Colville, Chewelah, and Kettle Falls. The majority of people live in unincorporated areas.

Projected population trends



Counties

Stevens (99%)
Pend Oreille (1%)

Special purpose districts

Stevens County Conservation District

Principal Cities

Colville	Chewelah
Kettle Falls	Springdale
Valley	Addy

Reservation Lands

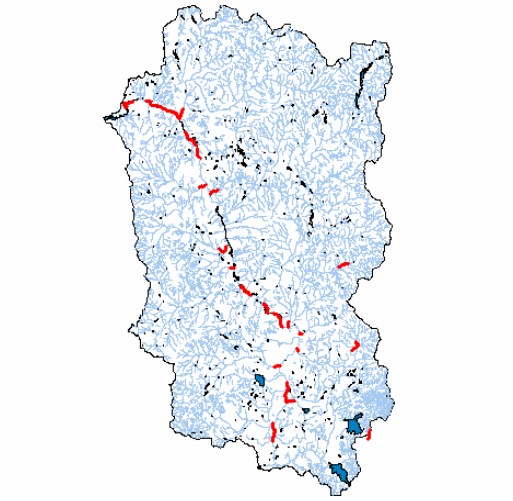
None

General Landscape

Rugged, high mountains are the dominant feature of this region. Elevations are generally 1,300 to 6,880 feet. Mountains have sharply-crested ridges and steep slopes cut by steep walled narrow stream valleys. Soils are derived from basic rock. Potential natural vegetation includes western white pine, lodgepole pine, western red cedar, Douglas fir, wheatgrass, fescue, and needlegrass.

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Blue Creek, Chewelah Creek, Colville River, Cottonwood Creek, Haller Creek, Huckleberry Creek, Jump-Off-Joe Creek, Little Pend Oreille River, Mill Creek, Sheep Creek, Sherwood Creek, Stensgar Creek, and Stranger Creek

High Temperature in Chewelah Creek, Colville River, Cottonwood Creek, and Stensgar Creek

Dissolved Oxygen in Blue Creek, Chewelah Creek, Colville River, Sheep Creek, and Stensgar Creek

pH in Chewelah Creek, Colville River, and Mill Creek

Nutrients in Colville River and Starvation Lake

Chlorine in Colville River

Flooding and bank hardening for Mill Creek and Little Pend Oreille River

Total Maximum Daily Loads

2 TMDLs required from the 1998 303(d) list

Groundwater Quality

Nitrates – Levels detected > 10 mg/L
Pesticides – Have not been detected in public wells.

Sole Source Aquifer

None

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

No significant use of surface water sources

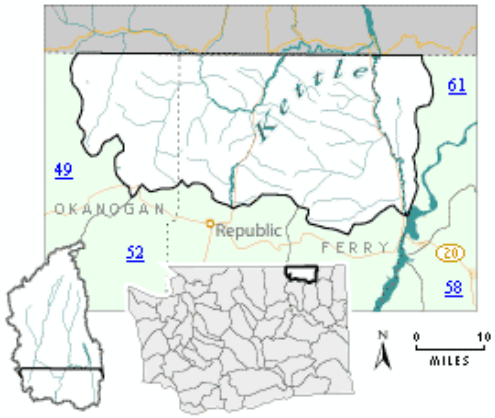
Salmonid Stock Status

All Anadromous Extinct
Resident Healthy

3. Water Quality Programs

1. TMDL for Colville River
2. Mill Creek Watershed Implementation Plan, Stevens CD
3. Huckleberry Creek Watershed analysis, USFS
4. Jump-Off Joe Creek Implementation Plan, Stevens County CD
5. Restoring Colville River Watershed Health Program, Stevens CD
6. Huckleberry/Chewelah Creek Implementation Program, Stevens CD
7. Starvation Lake Water Quality Program
8. Northwest Alloys L-Bar Water Quality Monitoring Program, Stevens CD
9. Onsite Sewage Education Program, Northeast Tri-Counties Health

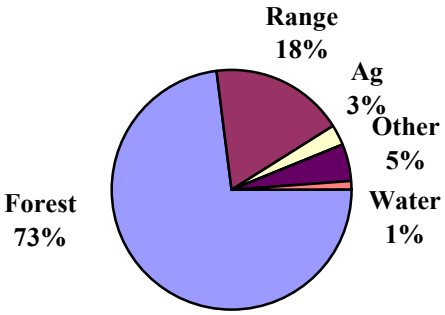
Kettle Basin - WRIA #60



WRIA #60 encompasses about 654,844 acres. The two ecoregions include the Northern Rockies and Columbia Basin. Average annual rainfall is 18 inches per year.

Demographics

Land use in the Kettle Basin



Land Base (in acres)

Federal	378,902	57.9%
State	45,591	7.1%
Local	-0-	-0-
Tribal	-0-	-0-
Private	229,351	35.0%

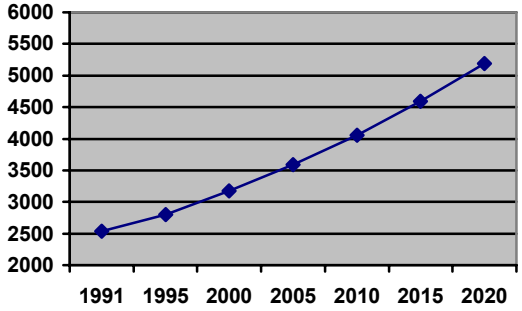
Principal Economic Activity (as total wages)

Manufacturing	12%
Retail Trade	13%
Services	14%
Government	39%
Agriculture/Forestry	3%

Population

There are approximately 2,804 people living in the Kettle Basin. The majority of people live in unincorporated areas.

Projected population trends



Counties

Ferry (66%) Okanogan (24%)
Stevens (10%)

Special purpose districts

Conservation Districts: Ferry; Okanogan; Stevens County

Principal Cities

Chesaw	Danville
Curlew	Malo
Laurier	Orient

Reservation Lands

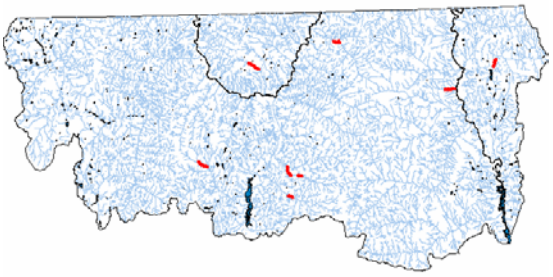
None

General Landscape

Rugged, high mountains are the dominant feature of this region. Elevations are generally 1,300 to 8,00 feet. Mountains have sharply-crested ridges and steep slopes cut by steep walled narrow stream valleys. Soils are derived from acidic rock. Potential natural vegetation includes western white pine, lodgepole pine, western red cedar, Douglas fir, wheatgrass, fescue, and needlegrass.

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Cottonwood Creek, Lambert Creek, Lone Ranch Creek, Martin Creek, St. Peter Creek, and Trout Creek

pH in Pierre Creek

Total Maximum Daily Loads

1 TMDL required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels not detected above 5 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer

None

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

No significant use of surface water sources

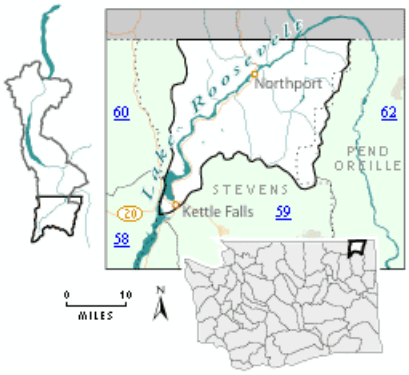
Salmonid Stock Status

All Anadromous Extinct
Resident Healthy

3. Water Quality Programs

1. Watershed BMP Implementation Project, Ferry CD
2. Onsite Sewage Education Program, Northeast Tri-Counties Health
3. Kettle River Watershed Plan Phase I, Ferry County Planning Unit

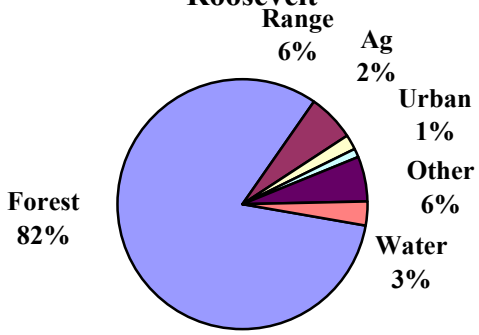
Upper Lake Roosevelt - WRIA #61



WRIA #61 encompasses about 370,061 acres in the northeast corner of the state. This watershed is part of the Northern Rockies ecoregion. Average annual rainfall is 24 inches per year.

Demographics

Land use in Upper Lake Roosevelt



Land Base (in acres)

Federal	110,458	29.9%
State	34,742	9.4%
Local	-0-	-0-
Tribal	-0-	-0-
Private	224,861	60.7%

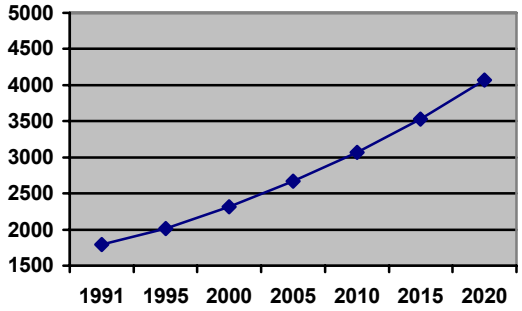
Principal Economic Activity (as total wages)

Agriculture/Forestry	2%
Manufacturing	21%
Retail Trade	17%
Services	24%
Government	25%
Other	11%

Population

There are approximately 2,312 people living in the Upper Lake Roosevelt Basin. The primary population centers are Kettle Falls and Northport. The majority of people live in unincorporated areas.

Projected population trends



Counties

Stevens (94%)
Pend Oreille (6%)

Special purpose districts

Conservation Districts: Stevens County; Pend Oreille

Principal Cities

Kettle Falls Northport
Marcus

Reservation Lands

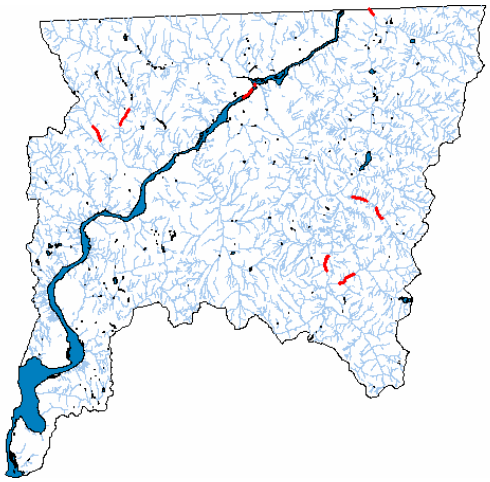
None

General Landscape

Rugged, high mountains are the dominant feature of this region. Elevations are generally 1,300 to 8,00 feet. Mountains have sharply-crested ridges and steep slopes cut by steep walled narrow stream valleys. Soils are derived from basic rock. Potential natural vegetation includes western white pine, lodgepole pine, western red cedar, Douglas fir, wheatgrass, fescue, and needlegrass.

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Crown Creek, Flat Creek, Meadow Creek, and Smackout Creek

High Temperature in Deep Creek and Franklin D. Roosevelt Lake

Dissolved Oxygen in Franklin D. Roosevelt Lake

pH in Deep Creek and Smackout Creek

Sediment Bioassay in Franklin D. Roosevelt Lake

Total Dissolved Gas in Franklin D. Roosevelt Lake

Arsenic in Franklin D. Roosevelt Lake

Aquatic Plants in Deep Lake

Total Maximum Daily Loads

5 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates - Levels not detected above 5 mg/L
Pesticides – Have not been detected in public wells.

Sole Source Aquifer

None

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)
No concerns

Public Health

Commercial Shellfish Growing Areas
None

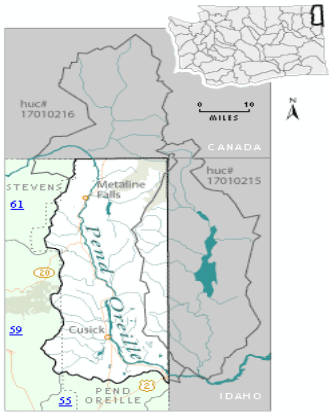
Domestic Water Supply
No significant use of surface water sources

Salmonid Stock Status
All Anadromous Extinct
Resident Healthy

3. Water Quality Programs

1. Onion Creek Watershed Analysis, Boise Cascade
2. Big Sheep Creek Watershed Analysis, Boise Cascade
3. Lake Roosevelt Water Quality Council (inactive)
4. Pingston Creek Watershed Management Program, Stevens CD
5. Onsite Sewage Education Program, Northeast Tri-Counties Health

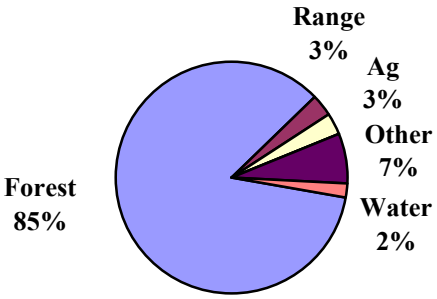
Pend Oreille Basin - WRIA #62



WRIA #62 encompasses about 794,546 acres. This watershed is part of the Northern Rockies ecoregion. Average annual rainfall is 34 inches per year.

Demographics

Land use in Pend Oreille Basin



Land Base (in acres)

Federal	503,962	63.4%
State	28,102	3.5%
Local	-0-	-0-
Tribal	4,541	.6%
Private	257,941	32.5%

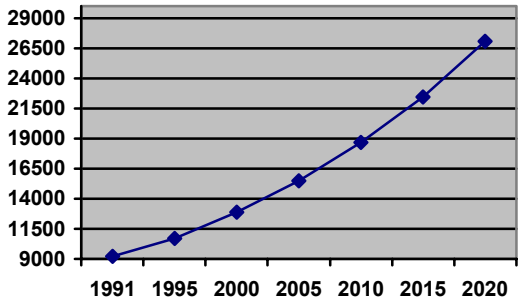
Principal Economic Activity (as total wages)

Agriculture/Forestry	1%
Manufacturing	16%
Retail Trade	16%
Services	15%
Government	43%
Other	8%

Population

There are approximately 12,700 people living in the Pend Oreille Basin. The primary population centers are Newport and Ione. The majority of people live in unincorporated areas.

Projected population trends



Counties

Pend Oreille (97%)
Stevens (3%)

Special purpose districts

Conservation Districts: Pend Oreille; Stevens County

Principal Cities

Newport	Ione
Metaline Falls	Metaline
Cusick	Tiger

Reservation Lands

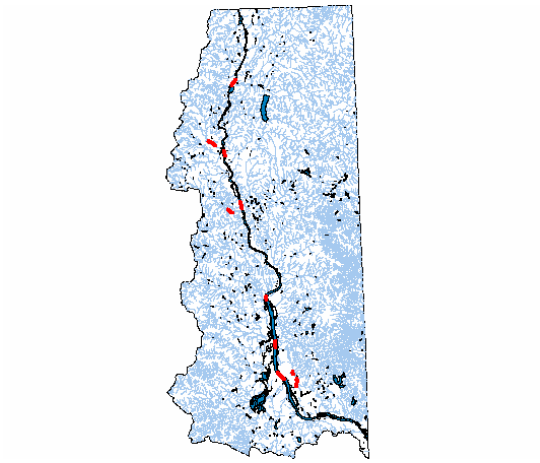
Kalispel Tribe

General Landscape

Rugged, high mountains are the dominant feature of this region. Elevations are generally 1,300 to 8,00 feet. Mountains have sharply-crested ridges and steep slopes cut by steep walled narrow stream valleys. Soils are derived from acidic rock. Potential natural vegetation includes western white pine, lodgepole pine, western red cedar, Douglas fir, wheatgrass, fescue, and needlegrass.

Surface Water Quality

303(d) listed waterbodies



1. 303(d) Listed Problem Areas

Fecal Coliform in Skookum Creek

High temperature in Cedar Creek, Lost Creek, and Pend Oreille River

pH in Pend Oreille River

Sedimentation of bull trout and west slope cutthroat habitat.

Exotic Aquatic Plants in Pend Oreille River

Milfoil found in Diamond Lake

Bank sloughing and hardening along Pend Oreille River

Total Maximum Daily Loads

2 TMDLs required from the 1998 303(d) list

2. Impacted Beneficial Uses

Groundwater Quality

Nitrates – Levels not detected above 5 mg/L
Pesticides – Have been detected in public wells.

Sole Source Aquifer

None

Water Quantity

No Concerns

Air Quality

Windblown dust from bare, dry agricultural land, especially fallow fields)

No concerns

Public Health

Commercial Shellfish Growing Areas

None

Domestic Water Supply

No significant use of surface water sources

Salmonid Stock Status

All Anadromous Extinct
Resident Healthy

3. Water Quality Programs

1. Water quality studies in Box Canyon Reservoir - Pend Oreille PUD
2. Phase II Restoration in Lake Sacheen
3. Tri-state Council monitoring and implementation in the Pend Oreille
4. TFW watershed analysis in LeClerc Creek
5. Pend Oreille Watershed Planning, Pend Oreille CD
6. 2514 Watershed Planning underway
7. Pend Oreille Water Festival, Pend Oreille CD
8. DOE Power Grant Program, Pend Oreille CD
9. Salmon Recovery Program, Pend Oreille CD